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THE

AMERICAN FARMER.

A

MONTHLY MAGAZINE

OF

AGRICULTURE AND HORTICULTURE.

THE OLDEST AGRICULTURAL PUBLICATION IN THE UNITED STATES.

Has probably a larger COUNTRY *circulation than any publication of any kind South of New York.*

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PACIFIC GUANO vs. PERUVIAN GUANO.

Those who have given attention to the composition of Peruvian guano, will notice upon an examination of the *Inspection Reports of Pacific Guano*, that the *character* and *composition* of the two guanos are almost identical.

The difference exists simply in the *relative proportions* of *precisely* the *same elements* of *fertility*.—Now the practical point of inquiry is, whether the proportions of the elements as found in *Pacific Guano*, constitute it a fertilizer of equal or greater value than Peruvian Guano; and this is a question of *the very highest importance* to the agricultural interests of the *entire South*.

It is important, *first*, because the price of *Pacific Guano is* $30 *to* $35 *per ton less than the price of Peruvian*, hence there would be a saving in money of $1,750,000 in the purchase and use of 50,000 tons. It is important, *secondly*, because it would break up the monopoly of the *Peruvian Government*, which has been most odious from the beginning. It is important, *thirdly*, because its use would give to the soil of the country nearly 100 per cent. more earthy phosphates than would a like quantity of Peruvian Guano, the benefits of which would ensure to the next as well as the present generation.

In 200 lbs. *Peruvian Guano* there are 100 to 110 lbs. *animal matter*, 25 lbs. *ammonia*, and 50 to 55 lbs. *phosphate of lime*.

In 200 lbs. *Pacific Guano* there are 75 to 80 lbs. *animal matter*, 7 to 8 lbs. *ammonia*, and 80 to 90 lbs. Phosphate of Lime, 28 to 30 *lbs. of which is in an immediately soluble form*. Now how is the truth to be arrived at, as to whether the *latter proportions* of the elements will produce as good or better results than the former?

We say, in reply, that the truth of questions of this kind is arrived at in two ways:

First, Theoretically, by rational deductions from *known and observed facts*.

Secondly, By the *disinterested testimony* of competent persons, giving the results of practical experience. This sort of testimony must be accepted, for without it no truth could be established. In regard to the first method, we assert that *certain facts*, upon which nearly if not all consumers of *Peruvian Guano* agree, give rise to a rational inference that the *proportions* of its elements are defective. Among these facts are, that it produces an *excessive vegetable growth*, the product of grain rarely, if ever, being in proportion to straw; *again*, that cotton and tobacco grown from it suffer materially from drought or excessive rains; *again*, that its continued use tends to exhaustion of the soil. These facts we say, with others, give rise, upon reflection, to a rational inference that *ammonia* and *Phosphate of Lime* in *Peruvian Guano*, exist in defective proportions, and we are sure no intelligent man can fail to become satisfied upon full *investigation*, that the truth is that *Peruvian Guano* contains a *large excess of animal* matter and *ammonia*, and is largely *deficient* in *Phosphate of Lime*; and further, that this *misproportion* constitutes its *material defect*.

In regard to the second method of ascertaining the truth, we say that if a theoretical truth suggested by *rational inference*, is *confirmed* by the *uniform, concurrent testimony* of disinterested witnesses, as the result of *practical experience*, then no rational mind can resist the conclusion. It must be accepted is truth. *Prejudices* must give way. *Now we assert that it is true, that Pacific Guano* is a better fertilizer than *Peruvian*, that an equal application of lbs. per acre, produces in many instances *better* results at one-third less cost, and has never failed to produce equal results, and that the cause is found in the fact that its elements exist in better *proportion*.

In evidence of these *assertions*, we refer, first, to the *reason* of the matter as indicated above; secondly, to the *correspondence* from the following named *gentlemen, farmers in Virginia* and *Maryland*, whose testimony is *direct*. These gentlemen are well known in their respective regions, and some of them widely known. Their original letters may be seen at our office:

B. W. Leigh, Blanton, Cumberland Co., Va.; T. A. Ball, Prince William Co., Va.; Allison & Addison, Richmond, Va.; Jos. S. Lewis, Pittsylvania, Va.; Wm. B. Morton, Esq., Botetourt, Va.; Grasty & Rison, Danville, Va.; Thos. R. Joynes, Accomac, Va.; Wm. D. Reynolds & Bro., Norfolk, Va.; Harris & Spooner, Charlottesville, Va., Dr. J. L. Adkins, Talbot Co., Md.; S. Ogle Tilghman, Queen Ann's Co., Md.; Edw. A. Richardson, Worcester Co., Md.; Isaac Conner, Worcester Co., Md.; John B. Timmons, Worcester Co., Md.; E. C. Wade & Co., Savannah, Ga.; J. R. & P. A. Dunn, Forrestville, N. C.

In view of the above it must be manifest to all, that whatever preconceived opinions may be, that it is the *material interest* of the farmers of *Virrginia* and the *South* to at least satisfy themselves of the value and economy of this Guano by its use to greater or less extent.

JOHN S. REESE & Co.

CONTRAST.

The vast importance of Pacific Guano to the agriculture of the country, compared with Peruvian Guano, will be clearly seen by the following contrast, and it is worthy of the careful attention of all consumers of guano.

Assuming 50,000 tons of Peruvian Guano are used in the United States per annum, the *cost* to the farmers of the country, at the present price, would be $6,000,000, (six millions of dollars,) and would restore to the soil of the country 12,000 tons of earthy phosphate of lime. The same capital invested, in Pacific Guano would purchase at present prices, 92,307 tons, which would restore to the cultivated soil of the country 39,692 tons of precisely the same phosphate of lime, which is 27,690 tons more than would be received from the Peruvian Guano; in fact there would be more *soluble phosphate* alone received from *Pacific Guano*, by 1,000 tons, than would be received *altogether* from the *Peruvian*. Are not these important facts for the farmers to consider? *The truth is*, the farmers and planters of the South have been, and are *wasting* money for *ammonia* in Peruvian Guano, and *depreciating* their soils by restoring *less phosphoric* acid than is removed by their crops, which system *must* terminate in exhaustion. The phosphate of lime contained in an ordinary application of Peruvian Guano, is totally inadequate, while the ammonia contained in the same application is far more than is either desirable or necessary.

JOHN S. REESE & Co.

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THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, OCTOBER, 1866. Vol. I.—No. 4.

OCTOBER.

"Ere, in the northern gale,
The summer tresses of the trees are gone,
The woods of Autumn all around our vale,
Have put their glory on.

"The mountains that infold,
In their wide sweep the colored landscape round,
Seem groups of giant kings in purple and gold,
That guard the enchanted ground."

Farm Work for the Month.

WHEAT SEEDING.

What can we say that we have not said, to urge the wheat grower to *early* sowing. All ground to be sown, is now, it is to be hoped, in good order, and the seeding may be dispatched with promptness. By the 15th of the month, let it be completed, if possible. And let it be well understood that at present prices of labour, seed, and other requisites, we cannot afford to sow on poor land. We would sow none without a reasonable prospect of twenty bushels to the acre. Wheat is a tolerably sure crop on good land, an extremely uncertain one on poor land. If the drill be used, as it should be, put always, fifty weight to the acre of some good fertilizer in with the seed, at the same operation. This should be by no means dispensed with, so great is its value in pushing the Fall growth. Nothing reconciles us, at all, to sowing so late as October, but the fact that guano, or other good fertilizers so used, will make a difference of ten days in the time of ripening, besides otherwise profiting the crop. The additional quantity of fertilizing matter needed, whether from the markets, or domestic, may be put on at any time during the Fall, if this drill sowing be not neglected.

TIMOTHY.

Sow Timothy immediately upon finishing the wheat, and upon the same ground, but Clover seed must be delayed in this latitude till Spring. It needs no covering.

SOD GROUND.

We think this the best season for top-dressing grass lands, to thicken up, and improve the sod. Seeds may be sown, if necessary, before the top-dressing. There is, perhaps, no mode of using the manuring material of the farm so economical as putting it on grass land.

But if the manure is wanted for next year's corn, or tobacco, or potato ground, let it be spread on the sod now to remain till the spring ploughing. The value of the manure for the crop, will be in proportion to the length of time its application precedes the ploughing.

CORN FIELD.

Tops and blades that have been converted to fodder, are very valuable, and should have the best protection against rains. Stow them well in barn or shed, but if there be no room there, an old-fashioned fodder house must, of necessity, be made of the tops, and blades and shucks may be stored there.

Very little corn, of common varieties, is fit to be gathered and housed before the close of the month, in Maryland. At any rate, too great haste in taking it to the crib, is to be avoided, lest there be damage from heating.

Seed corn should be gathered in the field. Select large ears, well filled out, and the lowest on the stalk. Choose from prolific stalks. Strip back the shuck, tie in bunches, and hang up to dry, out of the way of rats and mice.

TOBACCO.

Let there be no delay now, in getting the remainder of the tobacco crop, in this latitude, put safely into the house. Two years ago there was great destruction by frost on the night of the 10th of October. This was an unusual occurrence, it is true, but it does sometimes happen, and there is little benefit at any time from having tobacco remain in the field beyond that time.

Hanging in the house, the tobacco should have full benefit of sun and air, in all good weather. After it begins to cure, close the houses in damp weather, and in the evening, if the dews be heavy and weather warm. Warm and moist air, long continued, is especially injurious to the finest sorts during the process of curing, and should be guarded against by tight houses.—Doors should be closed, too, against very high winds.

The use of fire has been in great measure abandoned, on account of damage by smoke, and the great risk of burning, but if these can be avoided, fire is a very useful agency in getting the crop early out of the way of other risks, and into market. In some sections, wood is first burned to charcoal, and then used very advantageously in curing tobacco.

No tobacco house should be without one or more ventilators, on the top, for the free passage through of the air, and openings should be left underneath them in hanging the crop, that there may be ventilation throughout.

POTATOES.

The late crop of potatoes should be gathered by the close of the month, and put away in kilns on the surface of the ground, where it is dry and well drained. They should be spread long enough to dry off surface moisture, and it is very advisable not to dig in wet weather. Bear in mind, that exposure to the light injures their quality, and therefore it is to be avoided. Cover at first with a thin coat of straw, and a few inches of earth. Later in the season, before hard frost, remove to cellar, or cover with another layer of straw, and another of earth of a foot's thickness.

PUMPKINS.

If these are to be fed away early, as is desirable, gather and bring them near to the place of feeding. They may be preserved, if put away without bruising, under a thick covering of dry straw.

PROTECTION OF ANIMALS.

Animals of all kinds should now have protection, especially against cold rains. They should not be allowed to lie in the pastures at night, but brought to the shelter of the yards, as well for their own sake, as to save the manure.

FEEDING.

The feeding of such animals as are intended for the butcher in early winter, or before, should be begun at once. They will make now, much more weight from the same amount of food than in colder weather.

Sheep to be fattened, should have grain given to them in the pasture, beginning with a small quantity, and increasing gradually as they become accustomed to the change.

Oxen should be fed, too, while at pasture, giving them grain where most convenient. It is better, we think, on all accounts, to bring them to their stalls or pens at night, where they should be properly littered, and kept clean.

The feeding of hogs with grain should be commenced, even if they are not brought at once to close quarters in the pens. It gentles them, gets them accustomed to the change of food, and prepares them in every way to profit fast by full feeding, when penned.

Those who would make the best bacon without especial regard to cost, should continue to feed in small enclosures, with running water, if possible, and with shelters which ensure always a dry bed, and protection against bad weather. As soon as they become accustomed to their food, they should have enough to keep them quiet.—Quiet is encouraged, too, by feeding with strictest regularity as to time.

When kept in closer quarters, they may have litter enough to keep them dry, but should not be encouraged, or tempted, to root. The less work they have to do the better. For strictest economy, close pens, raised from the ground, are preferred.

French Horses.

In a recent letter from Paris, John Mitchell gives France a decided preference over England in the matter of fine horses. He says, Paris has the finest carriage horses in the world, and that, although France, a few years ago, was a large purchaser of horses from England and Germany, that country is now able to supply itself with both cavalry and draught. To the stallion establishments sustained in all the departments of France by the government, much of the credit for the improvement in horses is given. Gladiateur, the French horse that won the Derby last year, is now the most noted running horse in the world. He lately won a 10,000 franc cup in France. His owner has entered one of his horses for some of the English races this season.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER, Maryland Agricultural College.

OCTOBER.

This should be a busy month in clearing, storing, digging, and trenching. Keep up a constant war with the weeds, subdue caterpillars which are now molesting all the cabbage tribe Clear off all decayed and falling leaves, dress and roll all walks which may require it. Dig, trench, and plow up all ground that may require it, and make every part neat and clean. In all probability, during this month, strawberry and other plants recently planted out will show symptoms of wilting and decay, if such should be the case, examine the roots of all those so affected and it is probable that grubs will be found to be the cause; should it be so, every means should be adopted for their extermination. Collect all the leaves which can be got together, and put them in a pit to furnish a supply of leaf mold.

ASPARAGUS

May now be cut down to the surface of the ground. Clean off all weeds, and cover with three or four inches of good, rich manure. We never use the spade either on the beds or in the alleys.

CABBAGE.

Cultivate, and hoe between the rows to destroy all weeds. The main spring crop may be planted out toward the middle of the month. Those sown last month should be pricked out to strengthen, on four foot beds

CARROTS

Should now be taken up and stored.

CAULIFLOWER.

Continue to transplant upon raised beds, so that they can have the protection of mats, or other covering, during severe weather.

CELERY.

It is necessary to take advantage of every favorable opportunity to earth up all that requires it; rather let it remain as it is than attempt to do so while wet, as it will afterwards rot in a very short time.

LETTUCE

Intended for winter use, should be planted in frames admitting air at all favorable times. Should the plants require water, give it to each from a watering pot. Never expose the plants to heavy rains.

PARSLEY.

This, by many, is considered indispensable for the kitchen. Frames should be placed over a portion to protect it from frost. Some roots may be put in pots or boxes, and placed in a greenhouse, or in any convenient warm place where light is freely admitted.

POTATOES.

The land intended for their culture next spring should be rough dug or plowed, and exposed to the action of the atmosphere as much as possible.

The whole of the main crop should, during the month, be got up and carefully stowed away, being careful to keep each kind separate.

RHUBARB.

To be forced during winter, should now be taken up and laid in some cellar until it is time to put it into boxes, or whatever position it is to occupy when forced. This one of the most useful of our "*Pie Plants*," is usually forced by blanching, which we think very objectionable, as it destroys both color and flavor; our practice is to plant it in heaps of good rich soil beneath the stage of a green-house, or in any structure where light is freely admitted, and the temperature from 60 to 65 fah.

The Fruit Garden.

FRUIT TREES.

To be planted soon as the foliage commences falling. Manure not to be used unless the ground is in a poor condition, and then a little fresh soil should be used with it, good turf or clay. The clearings of ponds and drains are all excellent materials to invigorate an old worn out soil required for fresh culture, as also to give body to poor sandy soils. In planting, keep all roots near the surface; never plant any tree deeper than it was before, and if it was evidently too deeply planted before, give it a better chance than it had previously by more shallow planting. Place a stake to each tree soon as planted to prevent being rocked by the wind; when large trees are to be removed they should be taken up with the greatest care, every root should be carefully preserved, more especially the small ones, this we have found to be a matter of much more importance than that of preserving an immense ball of earth to a few of the larger roots. Should a tree lose, by accident, many of its roots by removal, a part of the head should be pruned away, as the head and root should always bear some proportion to each other; apple and pear trees may now be carefully pruned and trimmed. If the head of these were kept well trimmed out, that the sun and air could reach the whole of the branches, there would be much finer fruit, much cleaner and more healthy appearance, and the ground beneath them would be less injured. It is very

improper to allow the heads of fruit trees to grow into dense thickets of small wood instead of good, healthy shoots. We scarcely pass by an orchard that would not be benefitted by judicious pruning, cleaning, &c., by taking out half the trees, and one-half the branches left.

Look over all picked fruit frequently, to see that all is keeping well, removing any that may show any symptom of decay. It is now a good time to root-prune any fruit trees which are grown so luxuriantly to wood, without producing fruit. This operation we consider as one of the essentials to perfect success in the cultivation of the apple, pear, peach, plum, &c., having pursued the practice for a number of years with the most satisfactory results. Our method is to open a deep, and wide, trench at a proper distance from the stem, so that we can work with freedom, standing on a level with the lower roots, when we find no difficulty in undermining the tree. As the smaller roots are cleared they are tied up in bundles, in order to prevent their being bruised, the large perpendicular roots are cut with a saw some three feet from the main stem. All bruised portions being carefully pruned away, the smaller roots carefully replaced, and a small portion of well decayed manure and fresh soil added to the trunk.

RASPBERRY PLANTATIONS

May now be cleared of all dead canes and superfluous wood; the suckers should be taken off, and where required should be planted for succession.

FIG TREES.

It will be a great benefit to have some spruce or other evergreen boughs placed around them to prevent injury from frost; though this is less likely to occur this season than in many we can remember, as from the fine, bright summer we have had, the wood is becoming (Sept. 10th) well ripened not only upon the "fig," but upon every description of trees; consequently, they will receive the effects of severe weather with much greater impunity.

CURRANTS

May now be planted, as the next year's crop will be less jeopardized by getting them early to the places in which they are to fruit. Work in a good dressing of manure between the rows in old plantations; put in cuttings of choice sorts, the cuttings should be straight ripe shoots of *this* year's growth, and all the lower buds removed, in order to prevent the throwing up of suckers.

Five two-year-old ewes, belonging to E. N. Bissell, Richville, Vt., sheared sixty-seven pounds of wool, the growth of five days less than a year.

The Flower Garden.

BULBS.

Plant Hyacinths, Early Tulips, Narcissi, Liliums, &c., in the open border, and continue to pot and glass Hyacinths in succession, so as to prolong the season of blooming.

CHRYSANTHEMUMS

Should be attended to, so that they may have a fair chance of making good bloom. Give them clear liquid manure, and stake them securely, as the blossoms of the larger kinds are very heavy, and often weigh down the stems, or cause frail sticks to snap off. We never place them in the greenhouse so long as they are safe from frosts, except that any are required for early bloom.

FUCHSIAS

May be kept in bloom very late in the season by keeping them rather close. Plants going out of bloom, and which are to be grown another season, should be kept out of doors to ripen the wood, and left unpruned until some light frosts; then cut them in, say one-third of the last summer's growth, and protect them in any moderately dry place protected from frost, where they may remain until they commence to grow next spring.

ROSES.

The planting of the hardy kinds may be proceeded with in earnest; the ground should be spaded at least eighteen inches deep, and a liberal portion of rotten manure mixed with the soil. Protect the roots of Tea, and Bourbons, with a coat of good rotten manure and wood ashes. The planting of all kinds of hardy trees and shrubs may now be advantageously proceeded with. Where there are grass lawns, and gravel walks, they should be constantly attended to, or otherwise they will soon become unsightly; take up the "Dahlias" as soon as the tips are frosted; do not take too much soil from them, as it proves a protection when dry.

Transplant Hardy, Herbaceous Plants, such as Sweet Williams, Campanulas, Canterberry Bells, &c., &c., into the flower borders. Revise the whole stock of pot plants as opportunities offer; remove worms from pots by the application of lime water; renew the drainage where stopped, and otherwise prepare for the casualties of winter. Plants in pots, which have been standing out, should now be taken into the green, or dwelling-house.

In the English *Cottage Gardner* is an account of an enormous grape vine on the coast between Tyre and Sidon. It branches into two stems, one of which was 50 3-4 inches in circumference, and the other 40 inches.

For the American Farmer.

Drainage.

For some twelve years past, we have been accustomed to hear great complaints of the misbehaviour of fruit trees, grape vines, vegetable crops, the unsatisfactory blooming of roses, and many other things. We have, during the above mentioned time, witnessed the *preparation* of the ground, and planting of thousands of acres to fruit and other trees, *nine-tenths* of which, this day, are numbered with the things which were; thousands of these trees are lost for the *want of drainage*.

In our travels (we will not say where) we have seen people labouring away at the surface, raising the level by additions of soil, manuring liberally, removing plants which have not prospered, and planting others in hopes of better luck *"next time;"* and we can tell them when all is done, that until they secure the first *essential of success* —a removal of surplus water—there can be *no* success to their efforts; dig, sweat, and go ahead as they may. To those about to plant fruit trees, grape vines, &c., we would respectfully suggest that they open a hole two feet deep upon the land proposed to be planted, which will soon prove whether the surface soil is saturated or not; should the hole be filled with water, as in many cases it will be, it will be sufficient evidence that any cavity, tunnel or opening would draw it off according to the capacity of the opening, and that, therefore, very simple, and comparatively inexpensive means, would suffice to enable the soil to get rid of the water, which is in excess of its power of absorption. Three inch cavities, from two to three feet deep, made by pipes or otherwise, at a regular fall, will effectually drain a breadth of from twenty to one hundred feet in width, according to the nature of the soil, and its relative level. We have, as a general rule, laid our drains about three feet deep, and twenty-four feet apart; but in heavy retentive soils they will not be too close at twelve feet.

In districts subject to moles, we have used one inch pipes with very satisfactory results. In very flat land, we have found a fall of one in thirty-six to be sufficient to keep the water moving; but a rapid fall is much preferable, as after heavy rain storms a quick removal is very desirable.

We cannot now enter into all the details of the all-important subject; but as it is now a good time to drain lands requiring it, we would remind all who intend to plant fruit trees, that good and thorough drainage is most essential, as it promotes the warmth and fertility of the soil; on the other hand we can say, from observation and experience, that a water-logged soil is almost poisonous to every kind of fruit bearing plant.

DANIEL BARKER.

Fruit Department.

Growing Grape Vines from Eyes for Vineyard Planting.

There are two different methods I practice in this country, after many laborious experiments, valuable time, and cost.

The first plan is the out-of-door propagation of the readier and more willing kinds. For these I procure well-ripened wood, as late as possible in the autumn before the severe frost sets in; cut it into single eyes, and plant them without delay in rows, on a bed crossways in the open ground (rather exposed than sheltered), which is five to six feet wide, and in length according to the quantity of vine eyes, and prepared with the best possible soil as generally used for that purpose. After planting them I gave a cover of two inches and a half well seasoned loam, and half coarse sand well mixed, and do not water them, but let the soil be tolerably damp in good working order. After two weeks planting or more, if the weather permits, it not being wet, I cover the bed three feet with half-decayed horse manure, mixed with half fallen leaves, and lastly, line the whole bed three feet with the same material, no frost or moisture being able to penetrate,—not even 20 degress below zero.

In the beginning of April I remove the lining and covering, and place over the beds frames with sashes, and in a very short time the eyes make their appearance; by degrees I give air when the weather requires it. As the plants grow I raise the frames, and ultimately remove sashes and frames altogether, and leave them to the open air without disturbing or transplanting.

The more obstinate kinds I raise in-doors, with and without bottom heat, in sand beds only three to four inches deep; the eyes being covered half an inch.

Of these latter I likewise procure the wood and cut it up as above, but instead of planting the eyes at once on the beds, I, for two months, place them in barrels between layers of moist sand. About the middle of February, I plant them on these beds in-doors, and as soon as struck, plant them in well prepared pits, and treat them as the out-of door eyes.

This is the mechanical part of that business, and my method here, and if the watchful eye of

the experienced propagator but assists, final success is unavoidable.—C. GRUNEBERG, *in Gardeners' Monthly.*

Loading the Vine.

This is a very important part of the management of the vineyard, both in regard to the health of the vine, and the maturity of the fruit. The grapes of an overloaded vine are always poor and sour, being never thoroughly ripened, and will not bring more than half price in the market compared with well ripened fruit. Our experience in vineyard culture has convinced us that fifteen pounds of grapes to a vine is enough, in consideration of the future health of the vine, and the full development and early maturity of the fruit; and for such varieties as the Delaware and Rebecca, the quantity should not exceed ten or twelve pounds. Of coarse, isolated vines that have a great range, may be allowed to bear a large quantity.

We have for the last three years succeeded in ripening the Isabella at Oneida, by allowing the vine plenty of bearing wood, and carefully restricting the quantity of fruit. At the time of the first summer stopping or pinching, a glance over the vine will readily discover how many embryo bunches the vine has set, and knowing about the average weight of a cluster of each variety, you can, without much loss of time, reduce the number to the desired quantity, by pinching off the third bunch of each bearing branch, which is always the latest in ripening, thus leaving but two clusters, and if necessary the number can be reduced to one.

There is a difference of opinion in regard to summer pruning, some advocating close pinching, others a more liberal course, and still others objecting to summer pruning altogether. Undoubtedly the safest course is between the two extremes. The extension of the bearing branch to any great length beyond the last bunch, is of no benefit in developing the fruit, but tends to retard it; therefore the branch should be stopped at one or two joints beyond the fruit, and not allowed to extend further. The laterials will now burst forth and push rapidly, and should be handled with care. Situated as they are, exactly opposite the clusters, it will be seen that a few well-grown leaves at this point, must be of great value in developing and ultimately maturing the fruit. The laterals, however, should be stopped at the proper length, after leaving one or two leaves, as the case may require, and one additional leaf at each subsequent pinching.—*The Circular.*

The Fruit Garden.

If large fruit is wanted, thinning assists. Strawberries are increased in size by watering in a dry time. Fruit should be allowed to bear only according to their strength. If a transplanted tree grows freely, it may bear a few fruits—but bear in mind, growth and great fruitfulness are antagonistic processes.

Handsome forms are as desirable in fruit as in ornamental trees. No winter pruning will do this exclusively. It may furnish the skeleton—but it is summer pinching which clothes the bones with beauty. A strong shoot soon draws all its nutriment to itself. Never allow one shoot to grow that wants to be bigger than others. Equality must be insisted upon. Pinch out always as soon as they appear, such as would push too strongly ahead, and keep doing so till the new buds seem no stronger than the others. Thus the food gets equally distributed.

Whether strawberries should have runners cut off, depends much on kind and soil. Free growing kinds may grow too freely often in rich soils. Allowing them to exhaust themselves, and the soil, by growing thick together, is an advantage. Shyer growing kinds would not do well under such treatment. Most garden soils are rich; but on the whole, the most profitable and best plan, is the system of cutting runners off

If there be any blackberry really earlier than Dorchester, it will be well for those who love this fruit to look out in time and satisfy themselves. They will be in bloom about the end of June in very early places.—*Gardeners' Monthly.*

Scuppernong.

We assert this grape to be worth more to us of the South, than all others put together. The fruit is of large size; sweet; of delicious flavor; subject to no disease, nor liable to the depredations of insects or birds; it makes a finer and more delicate flavored, sparkling wine, than any other in the world, but requires very strong bottles to hold it. Some object to it because the berries do not all ripen at once. All the the reply we have to make is, cultivate the vines well, and when they are eight or nine years old, you will have as many as you want for the space of a month at all times. We do not hesittate to predict, that sparkling wine will yet be made from this grape, commanding a higher price than any other wine in the world. And as the vine can only be grown successfully in the Southern States, we urge it upon the attention of amateurs, and for vineyard culture, as far more remunerating than the Catawba, or any other variety, as it requires but very little attention to cultivate it, is enormously productive, and probably longer lived than any other known variety.—J. VAN BUREN.

The Nursery Trade.

The results of the past year, says the *Horticulturist*, have developed some very curious examples of timidity in this line of business—a business that now stands on a broad and permanent foundation, and is as legitimate in its pursuits and results as any other business that can be named, and yet, by a very large number, evidently carried on with the momentary expectation that all demand will suddenly cease. The question was asked, upwards of twenty years ago, of a nurseyman who stocked an acre near Hartford, Conn., "Where will you find a market for all your trees?" and since then nurseries have gone on increasing in numbers and extent year after year, and now the public are clamorous to know where they can find peach trees, plum trees, crab apples, quinces, evergreen seeds, Concord grape vines, and grape vines of all kinds. This kind of questioning is getting to be quite an important part of our correspondence, and we must decline answering it in any other manner except through our advertising columns. But the men who trembled the most were those who propagated grape vines most extensively. They evidently thought that a small matter of two or three hundred thousand vines would glut the market; and the cut throat game of seven or eight cents apiece for Concord vines was an evidence of fear by which the buyer profited largely. Now, in the month of December, when prudent buyers are looking out for next spring, Concord vines are scarcer at four times the price. We hear a great deal of talk about grape fever; but what does the whole of it amount to? About one of the most imperceptible things in existence. How many farmers in all this broad land have a single grape vine? Take all the acres of vineyard from the Atlantic to the Pacific coast, put them together, and how many townships in this State would they cover? Grow all the fruit, and make all the wine possible, and this city would call for more. This grape business is only in its infancy, and its progress will not end with this generation. How many farmers take an agricultural paper? Not one in ten. The balance know nothing—they don't want to know anything—and it will take years to educate such men to know the difference between good grapes and poor ones: but it can be done. It requires persistent application. There is steady progress; we have full faith in it. The time will come when every one will not be satisfied with a single vine; they will require dozens and hundreds. What our grape vine propagators ought to do, is to raise the first rate vines, and then let the public know that they have them for sale. Advertise boldly, liberally, persistently; keep at it week after week, month after month; spend your profits in printer's ink; it will all come back in good time, and goodly fortune besides.

Why Orchards Deteriorate.

Fruit trees, like everything else whose sustenance is derived from the earth, are subject to decay, but by improper management they are often killed before their natural productive power is half exhausted. This is not the fault of the variety planted, the locality, nor the severity of the weather, except in rare instances, but of those who have the care and culture of them. The trouble generally arises from the want of thought or the cupidity of the owner. He plants an orchard, the trees perhaps twenty feet apart. In a few years, if they grow well, their branches will cover a large portion of the intervening space. But some ground is still unshaded, and the orchardist thinks it is a pity that this should lie waste. The plough is introduced, and what is the reeult? Simply this; hundreds and hundreds of the small fibres, reaching out from the main roots in search of sustenance for the trunk, are severed; their absorbing and conducting power is destroyed, and the trees and branches, sustained by their active functions, wither; it ceases to yield its wonted burden of fruit, and, after a few years of languid life, permaturely dies.

The truth is, the farmer asks too much of his soil; wants it to impart vigor and fruitfulness to from fifty to eighty trees to the acre, besides giving him a crop of corn and potatoes annually. To secure the last he cuts the thousands of fibres of his trees with the plow, and then wonders why his orchard decays and dies prematurely! This is bad policy and poor practice. Do not ask too much from the soil. Give it a chance to nourish and sustain one product to a full development, rather than by a multiplication of them, to secure stinted samples of immature ones. The earth, properly manured and tilled, is munificent in its gifts to man, but when overtaxed by a multiplicity of exactions its response to his labors will be feeble and unsatisfactory.—*Rural New Yorker.*

Sunflowers should be cultivated around back yards, garden houses, pig stys, poultry yards, &c. Their stems and foilage absord a great deal of carbonic acid gas, and thereby prevent disease. Their seeds are good food for horses and poultry.

Wine Making.

BY HON. E. W. BULL, OF CONCORD, MASS.

It has been supposed that wine making was a difficult art, requiring great skill and long practice, and this is probably true of some rare and delicate wines, but sound and wholesome wine, and wine of good quality, too, may be made without a large experience, if certain rules are observed which are within the reach of the plainest common sense.

In the first place, care must be taken to keep all the vessels and utensils perfectly clean. These should all be of wood, as metal gives a bad flavor to the wine, which is sometimes a long time in passing off. If possible, have the mash tub large enough to hold a barrel of wine, if you have grapes enough to make so much, and a press which will enable you to fill up the barrel as rapidly as possible, so that the fermentation may commence in the whole body of the wine at the same time.

Let the grapes be ripe, but not over-ripe, that you may get their best flavor. It is not necessary to the making of a good wine that much sugar should be present in the grape, that can be added, but it is best to secure the real wine making properties, such as flavor and aroma and the gluten or yeast making property of the grape, and some of these properties are altered, and sometimes impaired, by over-ripeness, while your sole gain is in the amount of sugar which the grape contains. Gather the grapes when dry, and, if possible, in a cool, dry day.

The casks should not be new, for the new wood would be likely to give an unpleasant flavor to the wine. It is better to use casks which have already contained wine or spirit, and which are strong and well hooped; let them be perfectly sweet and clean also, and your casks are ready for use.

All grapes do not make equally good wine; some of the finest table grapes will not make wine, while some of our wild grapes, those which are not of too harsh flavor, will make a very good wine, if you follow the method which I shall describe before the close of this article. My own experience is confined almost wholly to the Concord grape, which I treat as follows.

If I desire to make a delicate, light colored wine, I gather the grapes as soon as they are well ripened, and take them immediately to the press, into which I put them without stripping them from the stems or bruising them. The screw will press out nearly the whole juice, which often runs from the press without color, making a white wine. This wine has a very delicate and agreeable flavor, but does not keep so long, I think, as that which is fermented on the stem and skin and seed, before pressing.

The grape rarely, if ever, contains sugar enough to make a sound wine when it is grown at the North. An instrument called a mash scale indicates the per cent. of sugar which the mash contains, but, as few persons will care to go to the trouble and expense of obtaining one of these, I mention another method which is about as good, and very nearly accurate. Take a new laid egg and put it into the mash, and add sugar until the egg will float on the liquid, exposing a surface equal in diameter to an old fashioned cent, or about one inch. The amount of sugar you find to be necessary for one gallon will give you the proportion for the whole quantity you make from the same grape. Now press your grapes as rapidly as possible, and put the juice at once into the cask, which should not be quite full until the fermentation is well a going, then fill up to the bung and let it work over a little, so as to clear the wine a little. If, however, the fermentation subsides, and the mash shrinks back into the barrel, as it will sometimes do, add the yeast again, (having caught and saved it for that purpose,) and the fermentation will start again.

A vigorous fermentation is believed to be the best; if, however, the fermentation proceed slowly, you should keep the air from the mash by laying on the bung lightly, or what is better, by putting one end of a bent tube through the close fitting bung into the barrel, and the other end into a vessel containing water. The gas which escapes from the barrel passes through the tube into the water, from which it escapes in bubbles, and the water prevents any return of air through the tube into the barrel to sour the wine. After several days, sometimes weeks, the fermentation subsides, and the liquor begins to clear, and the lees are thrown down. Now is the time to draw off the wine, clean out the cask of all settlings, and after returning the wine to the cask, put it into a sweet and dry cellar to ripen.—*Massachusetts Ploughman.*

Sorgo Sugar.

A Lebanon (Ohio) paper says: "The question 'can sugar be made from sorghum?' has been answered by the Shakers at Union Village. They have a method of their own discovery, by which they make sugar from the pure sorghum material. We have seen a specimen. It is very dark, exceedingly coarse-grained, and has the real sorghum taste, but it is thoroughly dry, and is indeed sugar. They have not brought their method to perfection, but they expect in a short time to be able to make a good article."

On the Part which the Atmosphere and the Soil Respectively Play in the Development of Vegetation and the true Theory of Agriculture.

BY J. G. MACVICAR, D. D., MOFFAT.

[*Concluded.*]

Has, then, let us ask, this cosmical disposition on the part of these great neighbours, the earth and the air, to keep the law and live in harmony together, to interlace their borders, and adopt as far as possible each other's substance and forms on their common frontier, been permitted to realize itself? Do we find that, on the mutual confines of the air and the earth, the air-particles seek downwards and become concrete, while the earth-particles, water included, seek upwards, and spread themselves abroad in the air? Yes; it will be immediately granted that the soil absorbs and retains in it a goodly portion of air and vapour. The earth also, it will be admitted, the more fully it is exposed to the air, becomes more and more pulverulent—nay, often rises in clouds of dust; nay, of fish; nay, of frogs; nay, what not, utterly to astonish the natives by their fall again. Certain earth-particles, also (potass, lime, &c.), in places where the air is still, are well known to effloresce beautifully into the atmosphere, as if to anticipate vegetable nature. Moreover, the aqueous matter of the earth is ever tending to rise into the air as vapour. Yes; it is to the law of assimilation (as the rational cause) that we owe the existence of the cloud world, so varied, so grand; and not less benignant than beautiful. For when it exists as vapour in the air, it is no less under the law of assimilation than it was when in the earth as water. And, in consequence of this, having now gained the aeriform state, and satisfied the demands of the atmosphere, it is called upon by the earth to satisfy its demand under the same law, and to become assimilated to it in its turn—that is, to become concrete. And, accordingly, with prompt obedience, from its aptitude for the concrete state, the cloud-matter forms into little masses while yet on high; and pouring down as rain, and hail, and snow, it not only assimilates itself with the concrete earth as a concrete form, but it ploughs the bald surface into many a ravine, thus enabling the air to penetrate deeper and lock with the earth more closely. Meanwhile the earth, by secular upliftings, meets the cloud half-way, and, summoning to its aid the volcano and the central heat, rises high in Alp and mountain-range, keen air piercing into the deep valleys between. Thus that which to blind sensibility seems but the war of the elements, is to intelligence a harmony and a mutual embracing. The storms and convulsions of nature are products of a law which has repose for its end and aim, and which is, as has been already stated, the symbol and representative in nature, of the unity and immutability of the Deity. The law of assimilation by which a wound granulates and our organization is redintegrated, by which our strength, physical and intellectual, is restored hour from hour, is also that by which the surface of our globe, from being a bald geometric surface, is made rugged and hoary—that by which the beautiful, the picturesque, and the sublime, are imparted to nature, and a sheltered dwelling place secured for man and other animals.

Nor is this all. By the miracle of creation at first, and by sowing the surface of the earth thereafter, with the seeds of plants, the Creator has enabled the earth and the air to fulfil the law of assimilation and harmony between them in a manner that is most complete and most beautiful. For the fully-developed seed, the individual plant, the vegetable kingdom as a whole, what is it, when viewed in relation to the atmosphere, but air become concrete as vegetable tissue, piercing down into the earth and rooting itself in it? And, viewed in reference to the earth, what is it but a system of earth-particles, aqueous, gemmeous, earthy, saline, suspended and diffused in air to the utmost, by the concrete air-tissue (that is, the vegetable tissue) as a scaffolding; these particles, meanwhile, in so far as they are capable of the aeriform state, exhaling into the air in forms often fragrant, and always more aeriform than those in which they enter the plant? Yes; the calling of the vegetable kingdom, the charter of its existence with antecedent nature, the earth and the air, is to realize and fulfil the law of continuity, of harmony, of assimilation, on their mutual confines, (1) to carry up in forms as aerial as possible earth-particles, and to suspend them in a state of diffusion in the air when they cannot be made to vaporize into into it, and (2) to carry down, in forms as concrete as possible, air-particles into the earth.

And in this theory (along with that which gives the spherical superficies as the most general archetype of all forms that are the products of the physical forces) we have a satisfactory explanation of the forms of the plant-world in general. Here we see why a fully-developed plant must consist of an aerial and a terrene part, of widely-spreading morsels of surface or leaves, supported, if need be, on radii as leaf-stalk, branch, and stem, and of deep striking roots and rootlets. There is no longer room for wonder why plants and flowers, things of such

beauty, should be so fragile and so fading, the sport of every blast. The plant-form must intercede between the fickle air and the fixed fleeting earth, on their mutual confines. The plant must bring these heterogeneous elements together and reconcile them. And therefore, inasmuch as the air is very tenuous, elastic, mobile, spreading wide and rising high, while the earth is concrete, inelastic, fixed, and lying low, the plant which is appointed to represent both in itself, and each favourably to the other, must have a form that shall be tenuous, mobile, elastic, carrying up and distributing in the air such earth-particles as are capable of isolation and solution, as widely and as high over head as possible. It must, as an individual, be a wavy fleeting thing. If it is to acquire stability. and to last for years, or generations, or ages, it must consent to the compromise of its individuality. It must have recourse to the principle of association. Many must merge into one. The phyton must become a branching plant or tree.

That the plant-form, especially when an annual merely, must, from its tenuous and expanded character, be very liable to injury, is an inevitable consequence. But in creation, as it actually stands, is this an evil? Nay; to the very extent that the plant-world is easily destructible, it is suitable as food for a higher order of beings —beings possessing sensibility, and that sensibility so adjusted to their organization that a state of organic well-being in them is a state of enjoyment to them; beings teeming in multitude —creatures such, that it may be truly said, in a high sense, that after the glory of the Creator himself, creation exists for their sakes.

To our theory there also attaches a definite conception of plant-life and function. A plant, according to what has been shown, consists at once of an ascending and a descending system of parts and action; and for the full development of the plant, a corresponding amount of energy must be simultaneously imparted to both these systems and modes of action. If the proper earth-particles which it is the duty of that species of plant to raise and suspend in the air are wanting in the soil where it is put to grow, the plant has nothing to do, and it will not grow either well or long. And if light and heat, which energise the air, are wanting, all the peculiar phenomena of vegetable synthesis must fail.

The ascending system of parts and action commences in the soil, and from concrete molecules in contact with the spongioles of the root, it takes up such as it can, analyzing and reducing them more and more towards the purely aeriform state; thus resolving water into common vapour, common vapour into oxygen and hydrogen, ammoniacal compounds into ammoniacal vapour, and ammoniacal vapour into nitrogen and hydrogen; also decomposing carbonic acid into oxygen and carbon, at least if nascent hydrogen be present, so that the carbon, by union with the hydrogen, may be rendered more aeriform than it is by itself, and thus may form the basis of some Essence by which the fragrance of the vegetable kingdom may be added to the vital air which, in these circumstances, that kingdom must constantly tend to evolve. Add to these things and to this mode of action the elevation out of the earth towards the periphery of the plant, that they may be diffused and suspended in the air to the utmost, the fixed earth-particles of carbon or diamond, potassium, silica, phosphorus, calcium, sodium, magnesium, sulphur, iron, &c., and it will be seen how much the root-system of a plant has to do.

But, for success in the accomplishment of this analytical function, it is wholly indispensable that the descending system which originates in the air and belongs to the leaf shall co-operate in energy; for as the ascending or root system is essentially analytic, or in the interest of aeriforms, so this, the descending or leaf-system, is essentially synthetic, or in the interest of concretes. An atom of carbon will not leave those of oxygen with which it is combined in carbonic acid merely to fall down and clog the plant as soot. While the root-system solicits the oxygens and carbon to part company, and offers nascent hydrogen for union to both, it is the descending, the leaf-system, that which has light and heat as its energizing principles, that actually effects the exchange. The leaf-system calls for molecules still more and more highly-compounded, for the construction of which, above all others, hydrocarbon is well-suited. But how, it may be asked, shall highly compounded molecules be able to maintain their existence if originating in the leaves and destined to encounter in the plant the analysing system of action that is ever ascending from the roots? For this they must be able to fulfil one or other of these two conditions: *first*, they must escape out of the cells in which the analyzing plant-action is going on, and get into places or vessels apart; or, *secondly*, they must possess in themselves molecular stability while in the plant. Now, under one or other of these two conditions, it may be shown that all the permanent products of vegetable nature fall. Wax, one of the most highly compounded of them all, even often gains the outside and reposes on the leaf or the fruit, as does also sugar sometimes. All essential oils, resins, alkaloids, crys-

tals, &c., exist in cells, apart; while as to starch, it is a vegetable substance constructed in such harmony with the whole action of the plant, that it is no more to be expected that a fully-developed plant will break starch up, than if it were the acknowledged embryo of cellulose. It is otherwise with sugar. But these views cannot be followed up by the ordinary lights of the laboratory. With the single exception of the sugars, all the formulæ of the tectonic elements of the vegetable kingdom are uncontrolled and destitute of significancy.

Now, it will be immediately perceived that to this theory of the natures of a plant, and the position of the vegetable kingdom in the economy of nature, a definite system of cultivation attaches; and certain great questions in agriculture receive a definite solution.

A plant, according to the view which has just been given of its nature, must consist simultaneously of air-elements and of earth-elements. These elements, therefore, must be its food. And it will grow well in proportion as it can succeed in simultaneously rendering the air-elements concrete and quasi-terrene in the lower part of its form, and the earth elements aeriform, volatile, or fragrant, or quasi-aerial, in the upper part of its form; as, for instance, distributed in lace-work all over its surface, and suspended in the air by the plant-tissue as a scaffolding.

The whole secret of successful cultivation, therefore, must lie in securing for the plant a never-failing supply of both classes of elements in contact with the organs appropriate for absorbing them, and that in the state most suitable for being absorbed and assimilated by these organs.

Now, on entering on details with a view to practice, it is encouraging to have to observe, in the very first place (inasmuch as practical proceedings can scarcely be applied to the air), that there is not one of the air-elements, unless it be atmospherical nitrogen itself, which is not an earth-element also; so that, through the soil, we can operate upon the whole plant, and so far develop or control its growth. Oxygen and carbonic acid enter largely into the composition of the crust of the earth, and the abundance of water below has gained for the world the name of the terraqueous globe. Ammonia, also, is no less terrene than atmospherical; it is even found among the products of the volcano. Even nitrogen (as I believe), when it meets with highly tectonic earth-elements, such as lime and potass in the presence of oxygen, tends to become concrete along with them, and to form beautiful efflorescences. But whether this be granted or not, it is obvious that the air-elements generally are earth-elements also, and have therefore a right to enter the plant by its earth-roots or spongioles, as well as by its air-roots or leaves, the first organic product of both being cellulose.

Hence, although the air cannot be modified to any great extent in the interest of a crop, yet by operating on the soil much may be done to develop or modify the entire plant, according as it is quantity or quality, foliage or fruit, stem or root, that is wanted by the cultivator. That he must keep the special end he has in view continually in mind, follows from the incompatibility of several of these products as simultaneous maxims. This incompatibility extends in fact to foliage and fruit or seed. It is impossible in the same plant to have a maximum of both. In order to obtain a maximum of foliage, conditions of existence must be secured which are most favourable to the extension and life of the individual where it is now growing. Its axes will then tend to maintain a character suitable for indefinite extension. New branches, bearing leaf-buds only, will manifest themselves, or, more generally speaking, foliage only. The plant will delay flowering till the last moment possible. In order to obtain a maximum of fruit or other seed, on the other hand, the conditions of existence must be such as, while promising the life of the species, they rather threaten than favour that of the individual. The individual plant-form in that case will not venture to extend itself. Its axes will tend to become finite by terminating in ovules (with their accompanying floral envelopes); for ovules are repetitions of the spongioles of the roots, and thus complete the symmetry of the axis and close the form, and permit the plant to die in peace, the continuation of the species provided for. A rational system of cultivation, according to our views, must therefore consist in providing especially for these three things:—

1. *An ample area for each plant*, that there may be abundant air-food for the foliage, and earth-food for the root.

2. *The full development of the root, and the prevention of injury to it*, whether by mechanical obstructions or poisons in the soil.

3. *The storing of the soil with food for the plant;* that is, with those concrete air-and-earth elements of which the plant under cultivation consists, and that, so that they may severally present themselves to the rootlets in a state fit for absorption at the several epochs during the growth of the plant, when they are needed for its development, whether soon after germination

for the foliage, or afterwards for the seed or fruit.

The reader will be able to deduce for himself the practical operations which these requirements suggest. Here I shall content myself with stating that the theory of Plant-life here adduced gives no countenance to such an idea as that a crop can be immediately fed at the root, in a healthy manner, on raw chemicals, acids, alkalis, or salts dissolved in water, or indeed on anything in a highly analyzed or dissolved state. As our theory gives analysis as the function of the ascending system in the plant, so it implies that the root normally commences operations on molecules in a highly synthetic state, on lakes composed partly of organic or aerial, and partly of earthy or saline constituents. It presents to us the perfection of cultivation, as consisting in making the soil in which the special crop is to grow a general compost, answerable in its constituents to those of the crop which is to be grown in it, and at the same time such as to mechanical condition, that it is thoroughly permeable to the growing roots, to the full extent to which they tend to stretch. From the wonderful power of soil as a filter for giving pure water, it appears that earthy, saline, and organic matters unite with it very readily; and the direct application of salts to crops, and the ploughing in of growing crops, may be excellent ways of generating the molecular compost which a well-conditioned field ought to be. But our theory certainly points with favour to the old doctrine of an abundance of well-rotted manure as the grand desideratum, when our object is to carry off as much vegetable matter from a field in one year, as that field would only give in several years if left to the course of Nature. It finds no necessity, however, for the water which usually constitutes the bulk and the inconvenience of such manure; it apprehends no material loss from the desiccation of manure to a great extent; and it proposes the reduction of the bulk of manure, so that it may be carried like seed, and sown with it, as the great object which the enlightened agriculturist ought at the present day especially to aim at. It repudiates all extreme conceptions, however, in this matter, as in all others, and approves of the wit of the old Scotch judge, who, when his brother judge assured him that the new chemistry would enable a farmer to carry out the entire manure for a field in his waistcoat pocket, replied—"Yes; and bring home the crop too." The anecdote refers to the chemistry of Lavoisier, however, and not that of Liebig, who, though sometimes over-sanguine, no doubt, has yet more insight into the economy of organic nature than any one who ever lived before him, and has laid the world under deep and lasting obligations to him for what he has done, and is doing, for agriculture.

Boiled Wheat.

It is possibly not as well understood as it should be, among housekeepers, that a healthful and nutritive food may be prepared by boiling wheat to be eaten with milk or molasses—the former to be preferred when attainable. It is a first rate thing for children, while adults may use it to advantage. Some have the wheat cracked in a mill before using, which is perhaps the preferable plan, but it will answer well without this preparation. A lady correspondent of the Ohio *Farmer* says, "The wheat should be cracked in a mill. Take one quart and put it into half a pot of warm water, and let it stand upon the stove several hours; then boil slowly, and stir it occasionally, till it becomes thick; put in a handful of salt. For children it can be used with milk. If left standing till cool, it is very nice to cut in slices, and use it with cream and sugar, or fry it like mush; the last mentioned I prefer for general use, but it can be prepared in various ways."

If boiled whole, the wheat should be allowed to soak in tepid water before boiling, that the grain may have a chance to soften and swell. When properly boiled, use with milk suitably seasoned with salt and pepper, and it will be found a nourishing, healthful and palatable dish.

Salt for Fattening Swine.

A correspondent of the Annalen des Landwirthschaft states some interesting experiments to test the use of salt in fattening swine. He selected two pairs of barrow hogs, weighing 200 pounds apiece. One pair received, with their daily allowance of food, two ounces of salt; the other pair, similarly fed, none. In the course of a week it was easily seen that the salted pair had a much stronger appetite than the others, and after a fortnight it was increased to two ounces apiece. After four months the weight of the salted hogs 350 pounds each, while that of the unsalted, five weeks later, reached only 300 pounds. The experiment was repeated with almost precisely the same results. The author feeds young pigs, according to their age, a quarter of an ounce daily; breeding sows very little during pregnancy, and during the heat of summer withholds it in a great degree from all, as it induces thirst and liability to disease.

Meadow Land.

Meadows cannot be expected to produce heavy crops if they are mowed, year after year, without the application of manure in the shape of top dressing. Nothing exhausts grass land more than repeated mowings, and on this account the most intelligent farmers manage to alternate pasture with meadow, occasional grazing being considered a rest for the land when compared with mowing. In the rich fattening pastures of Great Britain and Ireland the farmers never wish to meadow or mow the best feeding grass, if forage can be raised in any other way, as meadowing is considered to injure the pasture in various ways, such as giving weeds an opportunity of springing up, ripening their seeds and sowing them extensively.

When a field is "meadowed" or put up for mowing, the coarse grasses grow taller than the good feeding varieties, which spread along the surface, forming the sward so much relished by stock; these latter being overshadowed become weak, and do not recover from the effects of the meadowing for at least one year. Another cause of injury is mowing the grass close to the ground and removing the leaves and stems altogether from the roots. In pastures, the grass is removed gradually, and unless in dry seasons, and in over stocked lands, the surface is never completely bare. The mowing of meadows in the heat of Summer, thereby removing all shelter from the roots, and exposing them to the direct rays of the sun, has a very unfavorable effect on grasses of every kind.

When we want to destroy perennial weeds, one of the most effectual methods we have for doing so, is cutting the leaves and stems close to the ground, and keeping them down by the frequent use of the scythe or hoe, yet we expect grass to be an exception to all other plants, for we feel disappointed when a meadow which has been mowed in the heat of Summer, and grazed closely in the Fall, does not yield a full crop the ensuing year.

Farmers who are careful of their good meadow land, never permit stock to eat the aftermath; it is allowed to grow and protect the roots from the sun, and also to extract such ingredients as the atmosphere affords. The aftermath is cut down by frost in Winter, and rotting on the surface, furnishes an excellent mulch for the roots of the grass. In the vicinity of Edinburg, Scotland, meadows have been made to produce six or seven crops of grass annually by a plentiful application of liquid top dressing, obtained from the city sewerage. The description of grass which furnishes these abundant crops of soiling is generally Italian Rye Grass, a species which grows very tall, and produces fodder very much relished by horses and cattle. Every farmer should have a liquid manure tank, into which the urine of stock should be conveyed by drain-pipe from the stable, byre, and hog pens. Liquid manure is a very valuable top dressing for grass land. It should be applied with a watering cart constructed especially for the purpose of distributing it evenly over the field. The liquid manure, however, can be used more economically for saturating muck or compost that is intended for top dressing, as by this means it will be much more lasting than if applied in a liquid state.

A large portion of the old meadow land in the United States is deteriorating and evidently stands in need of annual top dressing with liquid or solid manure, bone dust, guano, ashes, &c.—Plaster, although very good for leguminous crops and artificial meadows, is not equally beneficial to the natural grasses, and is of no manner of use on wet soils. The following questions were addressed by M. Boussingault to agriculturists living in different districts of France, in order to determine the value of gypsum for grass and other crops: 1st. Does gypsum act favorably on artificial meadows? Forty-three answers returned. Forty affirmative, three negative. 2d. Does it act favorably on artificial meadows when the ground is extremely wet? Ten answers returned. No, unanimously. 3d. Can it take the place of organic manure or of humus in the soil? In other words can a sterile soil, by the mere act of using gypsum, support artificial meadows? Seven answers returned. No, unanimously. 4th. Does gypsum in a sensible manner increase the growth of cereal crops? Thirty-two answers were returned to this question, of which only two were in the affirmative.

Marls are compound earths formed of carbonate of lime and clay, in different proportions. Sometimes sand takes the place of clay, hence the term clayey marl and sandy marl. When marl has been exposed to the atmosphere for some time it crumbles into dust or powder, and in this state is in a proper form to be applied to land, the minute particles of carbonate of lime being easily spread over the ground. When applied to stiff, clayey lands it has a tendency to keep the soil from running together into hard blocks, and to allow water to drain through. Upon light, sandy soils a marl containing much clay acts beneficially in a two fold way. First, by the carbonate lime, and secondly, by the clay. Some marls have an extraordinary effect in renovating worn out grass land.—*Ex.*

Shelter for Sheep.

It is very well known by those observant of the habits of sheep. that they are impatient of confinement. This is not so much the case with the larger breeds, which are more quiet and less given to roving, yet all sorts, while they need less protection than cattle, fail to thrive so well if kept to anything like close quarters, which cattle will submit to.

We have often remarked that the most thrifty and healthy flocks are such as have had no protection but a pine thicket, and have been allowed free range of the pasture during the severest winter weather. We should not, however, trust a flock, generally, to such treatment, but would take a hint from it, and combine with sufficient protection, under an open shed in bad weather, as much freedom of moving about as circumstances might allow. This we mean for stock sheep. Those which are fed with grain, for fattening, during cold weather, will not suffer from the comparatively short period of confinement if allowed perfect ventilation.

We get the following from a correspondent of the *Germantown Telegraph:*

For several years past I have noticed in the columns of the *Telegraph* various communications on the benefit of proper shelter for farm stock, and although I agree with their authors in the main, yet there are cases in which too much shelter may be given to some kinds of farm stock.

I well remember the maxim of "one-third more shelter one-third less feed," but we must not lose sight of the idea that economy of food is not all we are to look at in the care of our domestic animals.

As far as my experience and observation go, I have found sheep to be a class of farm stock which, during the winter, may have too much shelter for their own benefit or the real benefit of the owner. With them shelter seems to produce a different effect on cattle or other farm stock.

Cattle, when sheltered, will consume about the same amount of food as when not sheltered, but it is evident that as it takes less to keep up the warmth of the system a larger amount is devoted to the increase in weight, and hence, "shelter is equivalent to food" only in the amount of extra fat and muscle formed, and not in the saving of food.

With sheep this is not the case, for if well sheltered they will consume considerably less food, but will neither fatten nor grow as well, and I therefore argue they may readily be, and often are, too much sheltered for the highest profit to the owner of the flock.

From the above remarks I would not wish to be understood to argue that this class of farm stock should have no shelter—far from it—but there is in everything a "golden mean" for which we should strive. Sheep do not need much protection against direct cold, but suffer much more in fleece, flesh and fat from wet than from cold. Hence, all they need in the shape of shelter is a tight-roofed shed, boarded up on three sides, but entirely open on the side next to the yard.

During the first four years of our experience with sheep, I kept them *entirely* under a roof closed up tight on three sides, with slats in front. Every winter I was sure to lose from ten to twelve out of fifty or sixty, but was satisfied on comparing noses with others of my sheep-keeping neighbors, that my sheep consumed one-third less hay and fodder than those not sheltered, but it was also very evident that they did not come out in as good order in the spring as those not too well taken care of, nor were the ewes as successful in raising their lambs. Of course I was not long in looking around for the remedy, or rather for the cause, trusting that if this was removed the effect would cease.

Since then I have removed the front part of the shed, and have added a small yard for the sheep to run in, and I find that, no matter how cold the weather, (if not stormy,) the sheep seem to prefer the yard to the shed, and when not eating spend their time there.

One very important point in the care of sheep in winter is to furnish them with plenty of pure air at all times; with other kinds of stock it is best to guard against direct draughts of cold air, but protected as the sheep are they will not feel that which to a cow or horse would be injurious. This desideratum I have attained by constructing a ventilator through the hay-mow over the sheep-pen, and through the roof. At all times there is a perceptible draft through this ventilator, and if a breeze is blowing in at the open side of the shed the draft is strong enough to raise straw and chaff clear to the roof.

Another point which many of our sheep breeders and feeders neglect, is that in their business two and two do not always make four. That is, when they have had a given profit from thirty or forty on a given amount of feed, they will not always double their profit with double the number of sheep consuming double the amount of feed.

Fifty will be found to be as many as can be profitably kept in one enclosure during the winter, and if more are kept there should be two flocks and consequently two enclosures. If this

trouble is taken there will be a reasonable chance to double the profit on double the feed and sheep, but without it disappointment is almost sure to result.

My rule is that five sheep are equivalent to a steer or cow, and hence with my facilities for keeping ten steers I either keep five steers and twenty-five sheep or fifty sheep, from which I can make more profit.

New York Agricultural Implement Trial.

The great trial of Agricultural Implements at Auburn, N. Y., after continuing eighteen days, was concluded July 27th. The report of the judges has not yet been made public. Some little time is, of course, necessary to properly prepare such a document. It will be looked for with interest, and will doubtless be of much practical value. This trial was the most careful and thorough one of the kind ever held in this country. No one doubts the ability of the committee, containing as it did, men well known to the agricultural public, and men of national reputation for their scientific attainments. Not only will the decisions of the committee be of interest, but the facts which led to these decisions will be of much value.

One of the principal advantages of the trial will be, or ought to be, the benefit the manufacturers and inventors will derive from it. Not only had they a fine opportunity to advertise their respective machines, but the bringing of them together, giving them opportunity to see, not only their own, but many other machines subjected to tests, and to learn why each one succeeded or failed in any given particular, must have resulted in the acquiring of much information which will manifest itself in modifications and improvements in their machines.

The principal contest was among the Reapers and Mowers. Of these there was a very large number of entries, and very great interest was manifested in the different tests to which they were subjected. Next to them in the number of entries were the Horse Hay Forks and Hay Rakes. It is to be regretted that manufacturers of various other kinds of farm implements and machinery did not take this opportunity to prove by practical working in public that their claims are correct. In some classes for which prizes had been announced there were no entries, and in others but one or two entries made their appearance. These men labored under a disadvantage, as the same degree of interest was not excited as would have been had there been greater competition. In some cases, as in those of the Hay Loader and Hay Tedder, there are very few patents, and as these were novelties, they would attract a fair degree of notice.

We can only say, in general terms, that a very large proportion of the machines of all kinds did their work very well, and exhibited a wonderful advance within a very few years in the work of applying improved machinery and the muscles of the horse to many kinds of labor which farmers formerly did with only simple tools and their own physical strength.—*Western Rural.*

London Cattle Market.

An interesting sight to me has been the Metropolitan cattle market beyond Islington. I suppose it is the largest cattle market in the world, and is the point, it will be remembered, from which the rinderpest is supposed to have taken its rise, or from whence it spread through England. It is an immense yard, with a tower in the centre, and nicely paved with stone flags, provided with railing, to which the cattle are tied, and alleys between. It has pens for the sheep, calves and pigs. I was there when the number of cattle was said to be 5,000, and 20,000 sheep.

A large number of the cattle were foreign, Dutch, French, Danish, Spanish, Scotch, &c., &c. It was quite a study to go through the alleys and and note the different character of animals, for beside the imported there was every breed in the kingdom. The Spanish cattle, with their soft dun color, their club heads and long horns, were interesting, because they differ so much from other breeds. They were very fat, and their horns were monstrous. Many of them had horns between three and four feet in length, and the distance between the tips would measure at least five feet. I hope none of my agricultural friends will think from my description that I am telling a horny story, or that I have I been "taking a *horn*," for I am simply recording the fact, "hard and horny" as it may appear. All the cattle are tied, and fast as sold are driven away.

Here are found all the breeds of sheep bred for meat in England. The Downs, the Leicesters, the Cotswolds, and different crosses. To a farmer desiring to study the best breeds for the shambles, I am sure no better school for a day can be had than at the Metropolitan market, because you see a vast number of beasts, and hear the remarks of those who are skillful in pointing out all the good as well as the weak points.—*X. A. Willard, in Utica Herald.*

Better till twenty acres well, than a hundred badly.

Early Fall Transplanting.

It has long been a commonly received opinion that all deciduous trees should have one good hard frost exposure, before being dug and transplanted in the fall. That such frost assists in hastening maturity of tree, we acknowledge; but that it is necessary to await frost and the falling of the foliage therefrom, before transplanting, we do *not* believe. The leaves have their part to perform, grow their growth, perform their appointed duty, and gradually fall to the ground. This falling of the leaves takes place much earlier in the season with some varieties of trees than with others. The cultivated sweet cherry commencing to drop more or less of its leaves in July, and mature nearly all of them early in September, while the Mahaleb does not mature much of its foliage until in August, and rarely drops any of it until the middle of September. The gooseberry and currant drop nearly all the foliage on old wood in August, and much of that on new wood early in September. The pear and apple rarely make any additional extent of growth after the middle of August, and most of their foliage is mature and ready to drop by the twentieth of September. The ash, birch, and many other forest trees have their main leaves all mature by the above time.

Looking at this we some fifteen years ago commenced planting out one or more of a sort of tree and plant early in the season, and continued our experiments until within the past two years, we have planted our cherries, pears and apples as early as the 10th of September, and our currants and gooseberries the first week of that month, and have rarely lost a tree or plant. We dig and plant in the usual manner, with or without water, as may be, but we make our shortening in pruning, either before the plant is dug, or as soon as it is out of the ground. The pruning, of course, takes off all the young and immature wood, and the ground being warm, the roots form anew without delay. One tree we examined last fall had made new roots over an inch long in two weeks from the time of planting. Lindley's Theory of Horticulture, together with general practice, make it much safest to transplant after the leaves have fallen in the ordinary maturity and extent of season, and undoubtedly such is the correct theory and practice, when trees have to be taken from a nursery, packed and shipped a distance; but where they can be removed from a part of one's own grounds, or obtained from a nursery within a few miles, we believe the early transplanting to give the most vigorous growth the following year.

Living With Cows.

Mr. Morton visited no less than 51 cow-houses in London, finding two classes—one neat, well-arranged and with every convenience, and the other dirty and ruinous. They vary from a few cows up to 80 or 100, and sometimes even more than the latter number—almost, or quite invariably, Short-Horns, or Dutch black and white cattle. In one or two cases the cow-house is on the lower floor, and the family of the owner dwells above. Mr. M. says:

You will meet in London with men who have been engaged in the business thirty or forty years, with a staff of servants, too, who have been in their employ almost as long. When the St. Pancras committee went around to inspect the cow-houses of the parish, and to condemn especially all of them which were, in any way, connected with the dwelling houses, they were met at the door of one, to whom they announced the decision against him, with an introduction to his grandfather and father, then living with him, both of whom had carried on the business there before him; "and here, too, are my children, gentlemen—four generations of us. It does not look as if the cows had been injurious to health, close by themselves."—*Co. Gent.*

Save the Fertilizers.

Much matter of a fertilizing character is suffered to go to waste on farms for the lack of a little care in gathering, preserving and applying it to the soil. Being distributed in small parcels at various points, it is regarded as of little consequence, but if brought together the several amounts would assume an importance which the separate parts failed to indicate. If the parcels of manure one frequently sees about sheds, hog pens, hen roosts, door yards and the like, were carefully gathered and applied to the farm and the garden, the products of each would be materially increased, while the cost of the gathering and application would be fully repaid by the superior healthfulness resulting from their removal. When this refuse matter is not in a proper state for immediate use, it should be gathered into heaps for fermentation—the masses being augmented from time to time, as material accumulates, till the preparation of the wheat ground shall call for its application. Save all should be the ruling idea with the farmer.—*Rural New Yorker.*

A Mississippi farmer says very many horses and mules and some cows have died in his region from a singular disease, which often causes death in a few hours.

Beet Sugar.

A correspondent of *The Nation*, writing from Germany, thus describes the condition of the peasantry on the great sugar beet plantations, and also the manner of making beet sugar:

After an hour or two I began to come into the midst of the great sugar beet plantations, for which this part of Germany is celebrated. The fields in which the root is planted here are often of vast extent, sometimes two or three hundred acres, reminding me of the prairies of the great West, or the plantations of the South. I was inclined to continue the comparison last made much farther after seeing the manner in which they are cultivated. The beets are drilled in rows about fifteen inches apart, and the whole labor of tilling them, from first to last, is performed with the hoe. Never before had I seen so complete a reproduction of some of the scenes I have witnessed in the Southern States on the cotton plantations. Here were at work men and women together, from fifteen to eighteen in one gang, hacking stolidly over the ground with the same mechanical stroke that marked the slaves. In one row I counted eighty-one, and they were principally women. When their labor is ended, however, and at the nooning, they display the same buoyancy, and often playfulness that are characteristic of the blacks. When the village bell in the distance, or the winding horn calls them to their simple fare, they often caper and chase across the fields in a rough buffoonery that shows the German elasticity of temperament is still unimpaired.

The clothing of these peasants is, of course, of the simplest and cheapest; a short, thick dress of woolen, and a close hood of the same for the women, and cheap, substantial store fabrics for the men. The women wear almost entirely material of their own manufacture, even to the shoes, which are mere soles of wood with a little leather tip or socket to retain them on their feet; but the men wear much less of it than our country people in America.

The wages that these people get are, for American needs, utterly insignificant, and they are certainly small enough for the supplying of German wants. The men get from sixteen to nineteen cents a day, the women from thirteen to fifteen, and that for a day of fourteen hours—for they generally begin at five o'clock and work till seven. Their labor is not severe, but very tedious and exhausting.

At Strassfort, a thriving city of about 10,000 inhabitants, I found the manufactories of beet sugar more numerous, perhaps, and certainly greater than in any other city in Germany. One of them employed a thousand operatives, another six hundred, and several others four or five hundred each. The beets are brought from the fields and elevated to the upper story of the building, where they are cleaned, crushed, filtered, &c., the juice descending from story to story, through curious processes, until it reaches the last one in the shape of beautiful "sugar hats," or cones of about two and a half feet in length, of the best quality of white sugar. The juice of the beet is red, a shade lighter, perhaps, than claret wine, but when boiled down without purification the sugar is only slightly tinged. This is called the "red sugar," and is converted into wine by the use of blood. It is cast in earthen moulds, of the size of the "hat" above mentioned, in which it is dried eight days and then taken out and polished for market. Take one of these clear solid cones up on its edge and strike it with a key, it rings like the purest steel.

The price of this sugar at the factory at the present time is ten cents a pound, and after testing it a hundred times, I pronounce it not at all inferior to the best article from Louisiana. One establishment, employing six hundred laborers, turns out six million pounds a year. The beets cost ten cents per hundred pounds, taken from the fields.

Gas Lime for Fruit Trees.

Gas lime was recommended as excellent to repel the borer from entering fruit trees near the surface of the ground. W. S. Carpenter thought the borer which is doing so much injury to our orchards, might be destroyed or repelled, by the use of this lime. He has employed it, with the most satifactory results, in repelling bugs from squash and cucumber vines, by sprinkling a small quantity of the lime near the growing vines. The poisonous effluvia arising from the lime, will soon stupefy and kill every insect that approaches the vines.

One person had used this lime twelve years ago for this purpose, and no bugs nor insects had appeared since in that locality.

Grease the Wheels.

Oil and black lead is supposed to be the best substance, but we have always found lard and flour apparently as good. If the wheels are kept well lubricated, very little difference will be found between the ease of running wooden and iron axles in ordinary farm work. The smaller the axle, the less will always be the friction, other things being equal; because the spokes have a greater purchase, the friction being the resisting force, and being nearer the end of the lever when the axle is small.

The American Farmer.

Baltimore, October 1, 1866.

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Fall Growth of Wheat.

We have, on several occasions, called attention to what is, in wheat growing, the very "root of the matter," viz: that the excellence of a crop of wheat, and its exemption from the familiar evils which trouble it, will depend mainly upon the supply of good roots which it may make during the fall growth. Hence the importance of early seeding, and the value of the application of a concentrated fertilizer in immediate contact with the roots. They are to be developed, chiefly, now. They are laying underground, during the fall months, the good foundation of the future crop. We must give them all the opportunity, and all the encouragement we can. That *winter killing* is prevented by early sowing, and *rust* shunned, and *midge* anticipated, and disasters by storms, and rainy seasons, avoided, are ideas familiar enough; let us go further into the matter, and see that the reason that lies behind all is, that early seeding affords the opportunity the plant needs, of making its root growth in the fall, and guards it against these disasters, by insuring an early, vigorous, healthy, spring growth of stem and seed. Independent of all this, the full fall growth of roots is indespensible to the production of the largest crop of which the soil is capable. If we suppose that fertility of soil, or increased manuring, will compensate the loss of this advantage, and that deficiency of growth in fall may be made up in spring, we overlook the character of the plant we have to deal with.

Wheat, to be grown in its perfection, requires two seasons for growth. It will, indeed, make its whole growth, and ripen seed in one season; but it is well known how poor a substitute spring wheat is, for that which we are all familiar with in the grain growing country proper. Wheat is essentially biennial, and partakes of the characteristic of biennial plants. A chief one of these is, that the root and blade, the plant proper, make their growth during one season, and ripen their seed the next. The first is devoted, so to speak, to the laying up provision for the important work of supplying the seed, which is the work of the second season. Some of our most familiar edibles illustrate this. The parsnip, the carrot, the beet, the cabbage, &c., make root and leaf during the first season's growth. During the second, when they ripen their seed, the whole vital energy of the plant is given to that purpose, there being no increase of root or leaf. It is so with the wheat plant; and if it fails to make a sufficient supply of roots in the fall, the opportunity for the season is lost.

We allow ourselves to be deceived by appearances in this, as in other matters. A late sown crop of wheat, on good ground, will shoot up, as warm weather approaches, and make as fair a show of straw perphaps, as the early sown; but we have never seen or heard of a maximum crop from late seeding. Apart from the disasters peculiar to a late crop, it has not the supply of roots capable of perfecting a full crop of seed.

The fact that the growth of straw and stalk is not so dependent on the growth of root, is well known to practical men. They speak familiarly of a heavy growth of straw, and poor turnout of grain, as of common occurrence; a good crop of seed by no means follows the other, as a matter of course, because certain qualities of soil, and warmth and geniality of climate, will force the blade and straw entirely out of proportion to the underlying roots. A late planted crop of Indian corn, say as late as the first of June, in this latitude, will spring up rapidly, and make, perhaps, as much show of fodder as that sown early, but will want the root to make a full crop of grain; but the early planted, while its growth of blade and stalk is seriously checked by cold atmosphere, is still pushing out its roots in the warmer soil, and providing for the future necessities of a vigorous growth.

The tobacco planter is still more familiar with the disproportion often occurring, between the leaf and the root of the plant, because he has oftener occasion to observe them. He chooses, always, to sow his seed at the earliest time that the ground can be got in order, and knows that plants subjected to the changes and checks of early spring, are still forming their roots under ground,

while the late sown will come up quickly, grow rapidly, and make as much show of leaf by planting time, but will be deficient in root. He will plant his crop rather with those of yellow cast and stunted growth, but big root, than with large, green, vigorous-looking plants, with small roots.

Recognizing the fact here illustrated, and bearing in mind that mentioned, that the wheat plant is biennial, and makes its necessary growth of root the first season of its growth, we see the necessity of giving it all possible opportunity, by early sowing and manuring, to make its roots in the fall.

Arrangement of Fields for Cultivation.

With the necessity we are under of limiting our cultivated crops to smaller areas, will arise questions as to new arrangements of our lands, or new systems of rotation This will be especially the case with those who find themselves obliged to re-fence their land.

The heavy cost of fencing will compel the utmost economy in that respect, and it will be matter for consideration how far fences may be dispensed with, where we have found it convenient to have them before. This will involve the consideration of field arrangement. Let us say in passing, as to this matter of fences, that we hope old habits will not so far prevail as to make them necessary where they are really not so, and that every one will make a point of incurring the least possible expense on this account. We are sure that, in a great many cases, where it has been thought necessary to fence three or four or five or seven fields, that a standing pasture fenced off may answer every purpose, aided by a small lot near the stables, and that one enclosure may protect all the arable land. But we started to speak of the matter of rotation. We propose to call attention to several familiar ones, that those interested may compare them, and exercise their discretion in the application of them to their own circumstances.

SEVEN FIELDS

The first of these which we may notice, is the system long in use in some of the best farmed counties in Pennsylvania, and to some extent practiced in the northern portions of Maryland. It does not make permanent grass lands, but gives several years to grass of each of the divisions of land, and gives one to corn, one to oats, and one or two to wheat, as more or less grain or grass may be desired. The system may be applied to divisions of land ever so small, and there is no necessity, however desirable in some respects it may be, to have them separated by inside fences.

Supposing the rotation to begin with corn, a cleansing crop, it is followed by oats, which has the same effect in that respect as the corn crop, though not hoed. It makes a dense shade at midsummer, calculated to check the growth of weeds, and the stubble being shortly after ploughed, it has all the effect of a hoe crop, and with the previous corn crop, combines to leave the ground in the best condition for grass seeds. The common practice manures this oat stubble, at midsummer, with the contents of the farm yard, and an admirable foundation is laid for a good crop of wheat, and of grass following.

Whether clover seed alone, or timothy or other grass seeds, be now sown, depends upon whether one or two crops of wheat are to be taken from the course. If two crops, then clover seed only will be sown the following spring. From this sowing, a crop of clover hay will be taken the next year, and a fallow prepared for wheat the coming fall. Upon this wheat is sown timothy, or other grass seeds, to stand as many years as experience, or the previous arrangements of the farm, may indicate to be desirable. If there be seven divisions, there will be three crops of grass. On such a farm, stock is fed, either for the dairy or the butcher, or for both, to some extent. It is a system which accords with what seems to be the soundest agricultural theory, and from which we should expect the best results. It makes variety in the crops; gives the soil the benefit of the preserving effects of a long standing sod; devotes full half of the period of rotation to what is considered ameliorating treatment, and returns not only the coarser products to the soil, but feeds at home a large proportion of the grain.

FOUR FIELDS.

While we can but commend this system, yet, when we compare it with one common to many portions of Maryland and Virginia, which seems to violate the favorite theories of culture, we have no facts on which the latter can be condemned. On the contrary, we have seen lands grow fertile, and farmers grow rich, where, three years out of four, heavy grain crops were taken from the ground, and of the fourth year, not more than four months were given to improvement; where no sod was allowed to protect the soil; and where the grain was all sold year by year, no manures purchased but a little plaster, and nothing returned to it but the straw and fodder of the grain crops. This is the famous four-field system, which is peculiar to clover-growing dis-

tricts. It begins with the Indian corn, the most scourging crop known to our agriculture, which requires us to keep the land bare, and exposed to the heats of the summer, while, with its greedy and all-pervading system of roots, it searches every inch of the soil and appropriates the most valuable of its elements.

After this comes a crop of wheat. Since the introduction of guano and kindred fertilizers, they have been used to an enormous extent upon this crop, and on lands which could not profitably be cultivated on this plan, it is now found to be a good one, so far at least as present profits are concerned.—The fertilizer gives an impetus to the young clover, which is always sown at this point of the rotation, and on it is based the success of the whole. The use of guano, or other fertilizer, has never, however, been deemed essential in those districts to which the system was peculiar; the clover, and about two bushels of plaster to the acre in four years, included all the external aid given, except in certain sections, as on large portions of the Eastern Shore of Maryland, where plaster seemed to produce no effect, but marl, or lime in some form, took its place in ensuring a good growth of clover.

The third year of the rotation, the clover sown the year previous attains perfection in June, and in August the field is turned for the great crop, wheat on clover fallow. No other mode of preparation for a wheat crop can compare with this when we consider its cheapness and results. That which is taken after the exhausting corn crop is only justified, when guano is not used, by the trifling cost of putting it in the ground. Many farmers sow with the drill, immediately after cutting off the corn, without plowing at all, and maintain that this is the best practice. But after a well managed clover field, there is every element of success. Its dense growth has smothered out the blue grass, and every native plant which might interfere with the wheat; the close shade and moisture, with the summer heats, have thoroughly rotted the dead vegetable matter on the surface, and made manure of that which would have been hurtful to the growth of the young plants; its broad leaves, spreading themselves in the atmosphere, have gathered its fleeting wealth, while its long tap-roots have struck down into the subsoil, far below the range of the fibrous rooted wheat plants, and brought to the surface the mineral stores hid there. This, then, is the opportunity for a profitable growth of grain, and the farmer bestows upon it his utmost attention. The best practice is to break it early in August, and let it be till late in September, or early in October, when the surface only is again stirred, and the seed sown.

This crop closes the rotation. It is sown without grass seeds, and the following year the corn crop comes in again. The custom is to give all the manure to this crop, and the common practice is to begin immediately after harvest to haul out and spread upon the surface all the material, of whatever kind, and however rough and coarse. The higher points of the fields, and the thinner portions, are dressed first, and heavily, leaving the valleys to their own strength, and, the washings from above. This covering with the remains of two crops of wheat and one of corn, the product of three-fourths of the arable land, together with the decaying stems of the great growth of rag weed, which always follows the fallow wheat, fortifies the soil with an amount of vegetable remains, that amply compensates the absence of the sod, and insure a heavy crop of corn.

As we said in the begining, a system which takes away three exhausting grain crops in four years, is at variance with our established theories, but facts in agriculture are of more weight than theories, and this rotation has stood the test of practice for forty years, yielding heavy crops, and maintaining the fertility of the soil.

FRUIT CULTURISTS.—We have on hand about forty inquiries from Southern States for persons competent to plant and take charge of vineyards and fruits generally. Many of them offer extremely liberal terms to competent and reliable men. Persons of this class who wish to make advantageous engagements should advertise in the columns of the *Farmer*.

FINE CONCORD GRAPES.—Mr. Barker has been so kind as to send us from the Agricultural College a basket of very fine Concord Grapes. We have rarely seen handsomer bunches of any kind, and their quality justifies what we have heretofore said of the improvement of the Concord as it comes South.

SEEDLING STRAWBERRY.—We acknowledge receipt of circular describing Perry's Seedling Strawberry, recommended as a very superior variety, from Geo. Perry & Son, Georgetown Connecticut.

LARGE BERKSHIRE HOGS.—A friend at Waynesboro Augusta Co., Va., says: "I wish to make the inquiry through your paper, where the genuine large Berkshire Hog can be procured."

Raspberries.

The raspberry has been much overlooked as a market crop, chiefly, we think, from their want of firmness, and fitness for transportation, and because of the want of hardiness of the finer sorts. Brinckle's, Orange, Fastolf, and other kinds of good quality require to have the canes laid down in winter and slightly covered with earth. The improved Black Cap is of inferior quality, but hardy and extremely productive, and brings a fair price in market. As a market crop it is perhaps the best except in the immediate neighbourhood of cities.

The Philadelphia Raspberry, a comparatively unknown variety, from recent accounts promises to fulfil in great measure the requisites of a good berry for general cultivation, combining hardiness and productiveness with good quality. The *Rural World* gives the following account of it:

We have had this variety now for three seasons, and from the present season's experience with it, do not hesitate to pronounce it the best red Raspberry we have in cultivation. We do not say the fruit is as large or as high flavored as the best European varieties, when these can be had in perfection as they grow in an European climate; but these are all so tender and difficult to grow, that they have been practically abandoned, and are therefore worthless and useless to us.

We do not say that the canes are as hardy as an oak, and never get injured or killed—because the past winter has killed most of the canes down nearly to the ground—the two winters before, they escaped entirely unharmed. But then it should be remembered that grape vines and other hardy plants occasionally get injured—but nobody thinks of abandoning grape culture on that account. So of the Philadelphia Raspberry, our belief is that it is as near hardy as any upright raspberry ever gets to be in our climate; and we further believe that no raspberry of the above class can be found that will withstand our peculiar and changeable winters—and we may add, falls and springs—without occasional injury. We write for the latitude of St. Louis—a thousand miles inland—and not for the same or any other latitude, near the sea-board, which latter we believe, indeed know, has an ameliorating influence on the hardihood of plants.

So much for its negative, qualities, which, so far as we can see, are all named in the above.

Now, for all its good qualities, as they appear to us. It is a robust grower, canes strong and stout, much branched, almost entirely smooth, with only here and there a spine; foliage heavy, thick and healthy looking; very little given to sucker, an excellent feature for market-growers, does not grow too tall (4 to 5 feet) nor too weak, as some varieties do, but stiff and upright, and will scarcely need stakes or trellis. As to its fruitfulness, am inclined to place it with the Lawton Blackberry, Albany Strawberry, &c., and that is, get the growth of wood—uninjured—and you are pretty sure of a good crop of fruit; or, in other words, it is extra productive. The fruit is of good size, dark purplish red, quite firm, and fair to good in quality—indeed quite good, may be said of it, with a fine raspberry perfume and flavor. From present indications, we should consider it by far the best variety we have, and a most decided acquisition—coming nearer to filling the great desideratum among red raspberries, than any variety heretofore introduced, and that it should be in the garden of every family who love this delicious fruit, as well as being most promising to the market cultivator.

Tree Planting—Small Trees.

In tree planting as in many other good things the old adage *festina lente*, make haste slowly, is applicable. We mean as to the size of the trees. Young planters, especially, aim to have big, fine looking trees. They think that to get full grown trees quickly, they must plant large ones. It is a great mistake. An extreme case will illustrate what we wish to impress upon our young readers. A friend of ours, with a very commendable desire to have a plantation of grown-up trees, to adorn a site for building, incurred great expense in moving those of full size. With all the facilities he could command, and the utmost care he could use, he succeeded in saving the life of one indifferent specimen. This, we say, was an extreme case, but we may be assured that the obstacles here met with are only in less degree, as we go down the scale of size and age. Those which are freeest from them are the smallest and youngest. Our object must be to get them at such a stage of growth, as will give as much size as is consistent with the preservation of the roots in their removal, and the preservation of the natural growth of branches. If roots are destroyed in moving there must be a corresponding cutting back of branches, which unless done with great discretion, is destructive of the natural symmetry of the tree, while there is nothing gained in point of time. The folly of planting tall stems of twelve or fifteen feet, limbless and rootless almost, must be apparent. We must be content to take young trees from their place of growth, when they are so small as to feel but

little the change, and giving them the best possible chance by careful planting, in ground well prepared in advance, we may soon enjoy, if not large trees, at least such as are vigorously and rapidly developing both beauty and utility. There is a pleasure to be derived from healthy young trees, which is not to be overlooked because it does not come up to the measure of the advantages we look for in their maturity. The following is a printed plea for small trees, which we cannot do better than append to these remarks:

"We beg a little consideration for small trees. Go to the open field, or to the nursery and select a good specimen of almost any good tree—say the beech, or maple, or tulip, or hemlock. Take one or more of each, three or four feet high, that have branches well formed on each side. Save all the roots and fibers in digging them up, and in carrying them home, don't bang them to pieces, root and branch, but treat them with the utmost tenderness. Prepare large holes, in rich soil, and set them out, so they will grow vigorously. Clip the ends of the branches just a little, but do this so as to preserve the original symmetry. Now, watch these trees from year to year. How healthy they look in every limb and and twig and leaf. How happy they look, shooting out their branches on every side and dancing in every breeze. How graceful in every part and as a whole. Small as they are, they are perfect in form, and plainly predict what they will be when full grown. Age will only enlarge their bulk and bring them nearer the time of their decay.

"He who sets out large trees is compelled to top off at least the lower branches to enable the top ones to live. The roots are so mutilated in digging them up, that nearly all the branches have to be trimmed up and shortened in to restore the balance of things. But such a tree, so marred in root and branch, is only half a tree. It is a fragment to which the lost parts can never be restored. Begin, then, with small trees. How they enjoy life! They will, ere long, outstrip the large stumps you set out at the same time. Set them on your lawn and pleasure ground. Throw away your pruning saw, and let them work out their own ideal. If you interfere at at all, let it be only with your thumb and finger. Never fear their wanton ways. They will attain near to perfection if you will only let well alone.

THE AGRICULTURAL AND HORTICULTURAL SOCIETIES of York county, will hold their Annual Exhibitions at York, Pa., beginning on the second day of October and continuing four days.

Grass Growing and Manuring.

We urged last month the supreme importance of clover culture in the Middle and Southern States. We propose, at the risk of being tiresome to many of our readers, who are already sufficiently convinced to press upon the attention of all the grass growing generally, in maintaining and increasing the present fertility of their lands. In the circumstances in which Southern landholders find themselves just now, there is peculiar temptation to occupy the lands best suited for grass growing, in the more paying crops of grain or tobacco. But in the worst circumstances we should look ahead and make provision for the times to come. Better reduce the surface cultivation of annual crops one-half, and husband the fertility of the remainder by covering with grass, than by a greedy appropriation of the best resources of the farm, deprive it of the means of self-support, and recovery.

In every good system of cultivation known, grass culture is the foundation upon which it is sustained. No grass no stock, no stock no manure, no manure no grain, is an old and familiar saying, teaching the value of this feature of good farming.

The celebrated Thaer, in his *Principles of Agriculture* says, "When we manure our meadows plentifully, we are quite sure of a sufficient supply for our arable land." He thus assumes a large proportion of grass to arable land, and the stock necessary to consume the grass or hay at home. In such case it may not be found necessary to manure directly the arable land at all, for the treatment which gives full crops of grass, ensures sufficient fertility for all other crops.

The New York State Agricultural Society gives a premium for the best cultivated farm, and the question is always asked of each competitor, "What do you consider the best modo of improving the soil on your farm?" with reference to the different kinds of soil, clay, sand, or gravel, and it is curious to remark the uniformity of the answers given. Taking a volume of the Transactions we find, that one plows greensward under in the spring for corn, and "likes to have a coat of grass on the turf to turn under." Some apply manure during the course of cropping, before seeding again to grass. Another says, "My method of increasing the product is by the use of plaster (sown on clover,) on the home farm I also use barn-yard manure." Another top-dresses his meadows to increase the growth of grass, with a portion of his stock manure, while another puts all his manure on his newly-seeded grass lands. These are mostly

dairy-farmers, who yet grow considerable crops of grain for home consumption.

Turning to the grain-growing farms, we still find grass, and clover particularly, the basis of their improvement. "A clover lay of two or three years, turned under in May for corn, or in August for wheat," is the general rule, applying manure, if at all, to the corn crop before plowing. Another takes care to return to grass before his soil is over-cropped with grain, depending upon the former for the power to produce the latter; a dependence not misplaced, if the grass crop receives the attention which it merits, both from its intrinsic value and the place which it must hold in all self-sustaining systems of agriculture.

As to the best and most economical treatment of grass lands, we corroborate the method we have so often recommended by facts which we find in some of our prominent journals. The journal of the New York State Agricultural Society contains an account of a visit of its editor to a section of that State, and in speaking of its farming, he says: Near E. G. Faile's the grass crop was light, owing to the severe drought prevailing in that section of the State. But Mr. Faile's grass land had been top-dressed, and his yield this year was larger than usual, averaging, we think, three tons to the acre; his meadow fields showing a fine, healthy, green aftermath," while those around were generally scorched by the sun. The editor well remarks, "Mr. F.'s practice is undoubtedly the true one, and every farmer in that region will consult his own best interest by enriching his meadow land by a thorough top dressing of manure."

The editor of another farm journal gives the practice of a farmer whom he visited, in composting his barn manure with swamp muck—"the compost," he says, "when well rotted, making an admirable dressing for grass—or indeed any other crop; but he values it especially for the former purpose." He saw a twenty-eight acre field of timothy, (four years from seeding,) that was top-dressed with this compost the early part of last winter. The crop, he says, is remarkably even all over the field,—"We never saw anything handsomer." Two and a half acres of compost-dressed timothy had been cut, and yielded seven large loads of hay, that, it was thought, would weigh 25 cwt. each. This would be three and a half tons per acre. Four acres of top-dressed clover had produced eleven large loads of hay. On another eight acre field of timothy forty loads of raw muck per acre had been applied with decided benefit, though not as great as when the muck was first composted with manure.

Of another very successful farmer the same editor says: "Mr. S. is much in favor of top-dressing his grass lands. One field of timothy of thirty acres was top-dressed, with from ten to fifteen loads of rather strainy manure, the early part of March. The manure has all disappeared in the dense sward, and the crop of timothy is very fine."

It is needless to multiply proof on the value of top-dressing upon grass-land. Fortunately, the use of manure for this purpose has not been so uncommon as to have been unobserved in its beneficial effects. We wish, however, to impress our readers especially with the economy of using our farm-yard and stable manures chiefly for this purpose. We have no doubt that there is more direct increase of crop from a limited supply of manure than by any other mode of using it, and we have, besides, the great advantages resulting from the growth of grass upon the land that we have so often remarked upon.

We speak of the economy of using manure as a top-dressing for grass, and many are willing to acknowledge it, who yet insist in plowing it under in all other cases. This is mere prejudice, the result of long habit. The proper method of applying manures is on, or as near the surface as practicable. There is no more liability to waste in one case than another, and we hazard little in saying, we lose ordinarily half the value of the manures we make, when we plow them deeply under the ground.

To Insure Eggs for Winter.

If an old hen has been laying well all summer, and is late in moulting, she requires rest and time to recover from the moult; and if cold weather comes on her when but partially moulted, she will, perhaps, be a long time recovering the proper condition for laying. If, however, she is allowed to set late in summer, so as to rest her from egg laying, and during the time she is tending her brood she is encouraged to moult, by warmth and generous feeding, she will, when her moult is completed, soon get into a laying condition, and, by good management, may often be kept laying all the winter, and lay better and larger eggs than pullets. I give a little barley and oats, mixed, each day, and have the run of a small field. To prevent their wanting to set, I regularly take up all the eggs so laid, and never leave but two in a nest.—*Corres. London Field.*

Southern Relief.

We are indebted to Col. J. V. Jones, of Herndon, Ga., for copy of proceedings of the COTTON PLANTERS' CONVENTION, assembled at Macon, Ga., on the 3rd of September.

Many resolutions were adopted looking to the interest of the Cotton growers of the State.

We find also the following among the proceedings:

"In view of the magnificent charities dispensed to the destitute and suffering people of the South, by those of Baltimore, flowing from a pure sympathy and unaffected benevolence, they have caused all eyes in this section to be turned towards her in admiration and gratitude, which will be cherished and strengthened into a future intimate and durable relationship; therefore, be it resolved

"That this Convention, in behalf of the people of Georgia, return grateful and heartfelt thanks to the "noble and patriotic women of Maryland," and their sympathizing helpers, for such substantial outpouring and affectionate sympathy in the great cause of Southern relief."

In alluding to the subject some time back, we remarked upon the great necessity, that those who had this holy work of relief on their hands, should not soon be weary of well-doing. The following from a recent address of the lady managers of the Southern Relief Association, will show how they have realized this necessity, and how they propose to meet it.

"Deeply grateful for the blessing which has rested on their undertaking, they are obliged still further to invoke the generosity which has already answered their appeals so nobly. The large fund derived from the late fair is already exhausted. The good which it has done is incalculable, and yet every step in its distribution has developed hundreds of cases of suffering, which, but for the hope of relief through the agency of the association, would have been endured in silence unto the end. So long as they are without the means of giving succor to their destitute and suffering fellow creatures, the ladies of the association do not feel that they can conscientiously leave untried any fair and reasonable mode of adding to the resources of their charity. Nor would they regard themselves as doing justice to the good people whose hands have been so open to them heretofore, were they not officially to announce the continued existence in the South of an awfulness of destitution, whose appeals now daily make their own hearts sick. It has been suggested to the association that lists might be advantageously opened for small subscriptions of one dollar or less, at prominent places in this city and State, and elsewhere throughout the country. For the present they have concluded to adopt the suggestion, and they respectfully and earnestly entreat the co-operation and assistance of their friends and the whole charitable public."

With the purpose of carrying out this enterprise, the ladies have had printed a convenient form of circular for subscription lists, which will be put into proper hands, and distributed to different points throughout the city and State, as well as sent to other States and the District of Columbia. None will withhold their dollar or other mite, and many will add larger sums, and heads of families will doubtless often take pleasure in putting down a dollar for each member of the household. Thus many thousands of dollars may be raised, and vast numbers of the destitute and suffering be relieved, and among them, some snatched from death.

An independent association for the especial relief of the orphan children of the South, has raised recently a fund of about ten thousand dollars, towards building an Orphan Asylum at Richmond.

Correspondence.

James Alfred Pearce, Esq., who bears the honourable and honored name of our long-time Senator in Congress, says: "I welcomed your reappearance after your forced suspension—though a young farmer without personal knowledge of the value of your paper—but my father's opinion of it was so high, and his attachment to agricultural pursuits scientifically followed so great, that I am already prepared to fill his place as a staunch friend of your paper."

It may not be so well known to our readers as it is to us, that the late Senator Pearce, while he stood for so many years in the foremost rank of the Statesmen of the country, took the greatest interest in agricultural improvement, and was one of the most intelligent and successful practical farmers of Maryland.

We are in receipt of letters from two ex-editors of valuable agricultural Journals, one in a State North, and one South of Maryland, whose friendly regard, and flattering appreciation, are very agreeable to us for the two reasons, that their opportunities have made them familiar with the character of the Agricultural Journals of the country, and their opinions may be considered those of professional experts.

One with the most kindly expressions of interest in the prosperity of the "Old Farmer," sends

for a number of extra copies for additional subscribers he volunteers to get.

The other says: "I enclose two dollars for my subscription. I rejoice to see your Journal revived, because I regarded it, and so expressed myself, as the *best of all the Agricultural Journals of the country.*"

A subscriber proposes to discontinue his subscription to the *Farmer*, and sends back the last number with the inscription, "Take your paper back."

We have often said that it is important when we are written to in a matter of this sort, to have the name of the writer's post-office. Our mail books are kept by post-office lists, and as we mail to some twenty-five hundred offices, it is too much of an undertaking to hunt them over, to find a name for the purpose of erasing it. In the case of an acquaintance, or other person of some sort of consequence, the post-office may be known —but this person is neither one nor the other. We know neither where he hails from, nor who he is, and all he accomplishes, is to give us his unimportant name, and a clue to the quality of his manners.

Another—who undertakes to prate upon politics, and glorifies Yankees as "Saviours of the Nation," spells 'proper' *prop-per*, and 'Yankee,' *yan-key*. He retains all the Yankee self-conceit, but has lost the spelling book.

Per contra, as the merchants say. A Maryland Senator, who worthily fills his position, writes about the same date, and whose style, penmanship, manners and spelling are in most marked contrast with the other, says: "I have the pleasure of adding two more subscribers towards making up the "ten thousand Maryland men" that should give you a helping hand, so worthily deserved, and enclose four dollars in payment therefor."

A subscriber writing from Gadsden, S. C., says, "I was at Dunn's Rock Post Office, Transylvania County, N. C., before the war. You had other at Davidson River, same county. *We your subscribers*, have *all* left that section of the country, and are now scattered in various sections of South Carolina. We were murdered and burnt out of North Carolina (Western) and East Tennessee. I trust I shall ere long see the *Farmer* extensively circulated on the plains of Brazil."

COMMUNICATIONS —Several communications received too late for this number.

Book Notices.

We are indebted to Rev. Mr. Van Bokkelin, Superintendent of Public Instruction, for copies of—

THE HISTORY OF MARYLAND, to which are added brief Biographies of Distinguished Statesmen, Philanthropists, Theologians, &c., prepared for the schools of Maryland, and

A GEOGRAPHY OF THE STATE OF MARYLAND, *designed for Schools.*—These little works are designed to supply our Maryland Schools with what was much wanted, much more of Maryland History and Geography than has heretofore been attainable, in form and language suited to the capacity of young children, and the design, we think has, on the whole, been well executed.

THE CULTIVATION OF THE NATIVE GRAPE, AND MANUFACTURE OF AMERICAN WINES, *by George Husman, of Hermon, Mo.*—We are indebted to Geo. E. & F. W. Woodward, Publishers, No. 37 Park Row, New York, for a copy of this valuable little manual. It is commended as the work of a practical grower of long experience and great success, whose object, he professes, is to aid beginners, and to make grape-growing as easy as possible. The author thinks it is a defect in all books on grape culture, that the manner of preparing the soil, twaining, &c., are on too costly a plan to be followed by men of little means.

It is mailed, postpaid, to applicants for $1.50.

DE BOW'S REVIEW.—This very able Southern Review maintains its high reputation. The contents of September No. are 1. Progress of American Commerce. 2. Life and Times of John De Witt. 3. Sketches of Foreign Travel. 4. Commerce, Ways and Civilization. 5. Future of South Carolina. 6. The vast Resources of Louisiana. 7. The South and direct Foreign Trade. 8. Old Maids and Old Bachelors. 9. The National Census. 10. The Massachusetts Slave Trade. 11. Department of Agriculture. 12.—Department of Commerce. 13. Department of Freedman. 14. Department of Internal Improvement. 15. Department of Miscellany.—16. Journal of the War. 17. Editorial Notes.

$6.00 Per annum in advance. Offices, New York and Nashville.

VICK'S ILLUSTRATED CATALOGUE OF HARDY BULBS AND FLORAL GUIDE, *James Vick, Rochester, New York.*

THE EDINBURG REVIEW FOR JULY.—This Number will maintain the high character of this celebrated Review. The American reading public are under great obligation to the Leonard Scott Publishing Company, for the re-publication of

these English Reviews at the very moderate prices asked for them. Blackwood, or any of the Reviews, $4. Blackwood and any one Review, $7. The four Reviews, $12. Blackwood and the four Reviews, $15. The four are, the London, Edinburg, North British and Westminster Quarterlies.

GODEY'S LADY BOOK.—For October is received, and as usual, very full of interest for its lady readers. It is worthy the commendation of a contemporary, which says: "There is no work of the kind in the country that equals *Godey's Lady's Book*. Price $3, a year. Published by L. A. Godey, corner of Sixth and Chestnut sts., Philadelphia.

HOGS, SHEEP, &c.—We have numerous inquiries for stock of various kinds and breeds, some of which we cannot answer because the owners of improved stock fail to advertize in this direction. We much prefer that those wanting stock should deal directly with the owners, and not through our agency, and that would be the *case* if the latter would advertise.

NEW BRUNSWICK OATS.—We are indebted to Edward J. Evans & Co., York, Pa., for a sample of this variety of oats, said to be very productive and profitable. "It weighs forty-four to forty-five pounds to the bushel, and we think, will yield us almost double the number of bushels (by weight) that the common oats has given on the same ground."

SINCLAIR'S ARLINGTON MELON.—We are indebted to Mr. Robert Sinclair for the finest specimen of Cantaloupe, under this name, that we have met with. It is in size, larger than the best sold in the market, and in fragrance and flavor unsurpassed. We think Mr. S. may claim to have the very best melons of this class.

FINE STOCK.—The Richmond *Whig*, speaking of South-Down Bucks, offered for sale by our friend Dr. John R. Woods, Iry Depot, Albemarle county, says: "Everybody knows their value, and everybody knows that Dr. Woods has always the best of everything that can be had."

THE HOG CHOLERA.—During last month the hog cholera destroyed a large number of hogs in Miles River Neck, Talbot county, Maryland. Colonel Edward Lloyd lost in the neighborhood one hundred; Captain Richard Tilghman lost over sixty, and others lost a number.

CLASSICAL AND SCIENTIFIC SCHOOL.—We call the attention of those interested in such an Institution to the advertisement of St. Clement's Hall, at Ellicott's Mills, under the Rectorship of Rev. Dr. Avery Shepherd. After long experience at the South, Mr. Shepherd comes to Maryland with the very highest recommendations as a practical instructor and trainer of boys, and has chosen an admirable location for the fine building he has erected for his school. We feel assured that there is no school of its class in Maryland, which can be more safely commended to parents who would have their sons, in all respects, well taken care of. St. Clement's Hall is a suitable accompaniment of the well known Patapsco Female Institute, and gives parents the opportunity of having their sons and daughters educated in very convenient proximity.

The Best Grape Sets.

In answer to a writer in the *Horticulturist*, who complains of the high price of what he calls basket layers of grape vines, Mr. Griffith, grape grower of North East, Pa., says "a good, strong, well grown yearling plant can be grown for about ten cents, and as the cutting or bud (except of the 'new and rare' sorts) can be obtained for about a half of a cent, such vines ought to sell for something less than twenty cents. From an experience of more than twenty years, during which time I have grown some millions of grape vines, one hundred thousand of which I have fruited in my own vineyards, I am fully able to demonstrate that a well-grown one year old vine, produced from a single bud, in *open culture*, is the best and most valuable plant that can be grown."

Sir Archibald Alison has recorded the opinion "that the husbandry of Flanders on our plains, and that of Tuscany on our hill-sides, would easily raise food enough for double our present population."

"Prof. Johnston expressed his deliberate conviction that Great Britain does not at present produce one-half of the food for man which it might."—*English Paper.*

CATTLE PLAGUE IN KENTUCKY.—A communication published in the Lexington Kentucky, "Observer and Reporter," addressed by G. Clay Smith to the President of the Kentucky State Agricultural Society, describes a peculiar disease which has broken out among the cattle in that State, and which the writer believes to be similar to that which has been prevailing in Europe.

California Grapes.

To the Editor of the American Farmer:

I have carefully examined the catalogues of several prominent nurseries without being able to find the California Grape! Why is it? I lived for several years in the town of Los Angeles, the grape region, *par excellence*, of California, and since then have had opportunity of comparing many of the famous varieties of the Eastern States with the California, and have never found any grape to compare with the latter, either for wine-making, or for the table. The soil best adapted to grape-growing in and about Los Angeles is a dry sandy loam; with a gravelly, porous sub-soil—the sand largely in excess over all other substances. One thousand vines are planted upon an acre. Holes are made eighteen (18) inches deep with a crow-bar, and the cuttings (prunings from the old vines) are put down to the bottom. One man makes holes, another places the cuttings, and a third follows with a large watering pot, from which he pours water and kicks the soil into the hole until the sand and earth settles about the cutting firmly to the surface. About six inches of the cutting is left above the ground. From the middle of April to November there are no rains in California, consequently the cultivator must have recourse to irrigation. During the year of planting a vineyard the vines are copiously irrigated three times. I estimate a copious irrigation as equivalent to four (4) inches of rain. After the first year a vineyard does well when irrigated only twice. After the sap is well down *all* the runners are pruned off nearly up to the main stem, leaving three or four buds to produce grapes. The first season after the planting, the vines must be made to grow upright by driving beside them a stake twelve inches above ground, to which the vine is tied.

In pruning, a "leader" should be allowed to go upright so as to gain, say an inch in height, per annum.

These grapes require no trellisses, delight in sandy, dry soil, are superb for eating, and their vines have no equals. Yield, per vine, one (1) gallon of wine, or ten lbs. of grapes, per annum. It strikes me very forcibly that they will succeed admirably in all our southern States where the soil is similar to that described in the beginning of this paper.

If any of our nurserymen feel inclined to try them, I would recommend them to address Matthew Keller, Esq., Los Angeles, California, a gentleman much more competent to give information on this subject than the writer.

GEO. W. GIFT.

MEMPHIS, *Tennessee*, Sept. 15, 1866.

DINWIDDIE CO., Petersburg Post Office, Sept. 12, 1866.

To the Editor of the American Farmer:

We have been forced to give up our cherished surface cultivation and are turning our attention to the enrichment of a better cultivation of smaller fields. We are remote from market, still would willingly make use of the little means we have left to buy fertilizers if we can hope to employ them profitably. Will you not through your valuable paper furnish some plain directions for the *permanent* improvement of poor lands? Would you use lime, guano, or what fertilizer—and how—with what crops, and what system!—say, upon a farm of 150 acres to be worked and improved without reference to the necessities of the family living upon it, and at the same time, give the best plan for eradicating and destroying broom-straw, especially upon lawns and yards filled with shrubbery, and you will oblige,

AN OLD SUBSCRIBER.

[The request of our correspondent comes too late to be answered in full in this number of *Farmer*. We will give it attention at large next month. In the mean time, we shall be glad to hear from any of our readers on the topics suggested. We know of no method of eradicating broom-straw from a lawn short of taking up carefully every bunch as it makes its appearance.]—ED.

For the American Farmer.

About Clover.

I find our farmers experience difficulty in geting a stand of Clover. I have never failed in getting a stand of clover, or other hay seed, when planted in corn. At the last working of corn (which I think should be cultivated *level*, and which is my practice,) I sow clover seed. A mule, with a light brush attached, is driven once in each row, which is all the work that is necessary. Your corn-field ought to be in the very best condition when it is laid by. The young plant (clover) is protected from the sun by the leaves of the corn without being in any way smothered. By the time you strip for fodder the clover roots are sufficiently in the ground to keep the plant growing. At any time between fall and spring, cut your corn stalks (I use a sharp hoe) close to the ground. If your clover is to be mowed the first season, (which will give you a full crop,) rake and haul off the stalks. If not, allow the stalks to remain. They will not interfere with you the second year. With a roller, when the soil is moist, the corn stumps can be pressed in out of the way of the mower.

F. W. J.

GARDINER, S. C. Sept. 7.

Some Considerations on the Changes of the Phosphates in the Soil.

MESSRS EDITORS:—It is now generally conceded that the functions of the soil are by no means so simple as was formerly imagined by agricultural chemists. It was at one time regarded merely as an absorbent for certain solutions which are to be appropriated by the roots of plants, a sort of sponge to hold these dissolved salts until the little rootless could appropriate them. In reality, however, a number of very delicate, and still obscure reactions are now known to occur in this mass, once believed to be absolutely inert. We see a selection of materials, made by the earth, certain bodies being retained with great tenacity, while others are allowed to pass as through an ordinary filter. Nor only so, but decompositions, requiring no slight force of chemical attraction, are constantly going on. Of these, many are extremely complex, and require for their comprehension a careful study of a great number of factors; others are more simple and can be detected with greater facility. To one class of these latter reactions my attention was long since called by the study of the phosphates used as fertilizers.

Of these salts, that in most common use, and most fully known, is the tribasic phosphate of lime, ordinarily called bone phosphate. So general is its employment that it has been taken as a convenient standard by which the agriculturalist can measure the value of any other compound of phosphoric acid, and consequently, in analysis, it is customary to compute that acid in its equivalent proportion of bone phosphate. Furthermore, it used to be considered as the only form in which phosphoric acid can gain access to plants.

It is strange that such an opinion could prevail in the face of notorious facts. Thus, in no case does the ash of the cereals contain any very large proportion of phosphate of lime. Of the grain of wheat, for example, the ash contains (according to Fresenius & Will) 49.21 parts in the hundred of phosphoric acid, and only 3.06 of lime. Some of the phosphoric acid is in combination with potash, some of it has been generated by the oxidation, during combustion, of the gluten and other protein compounds contained in the grain. The lime, too, is partly a carbonate, partly a sulphate. Even, however, if we suppose the whole of this base to be combined with the acid in question in the ordinary proportions, we shall have only 2.61 of the acid saturated by it against 46.70 not so combined. In Indian corn the case is still stronger. There we have 50.10 per cent. of phosphoric acid, and out of all this, only 1.40 can possibly be combined with lime in the form of a tri-basic phosphate.

Unless, therefore we admit a dissociation of the acid and base by the physical properties of the soil, so that the one adheres to the surface of the minute pores as organic coloring matter is supposed to do to charcoal and alumina, we must suppose an interchange of bases to take place somewhere. Now, while I am by no means disposed to deny this peculiar physical action of surfaces in finely divided matter, I think I can show before I get through, that there is here a genuine chemical change, and that it probably takes place in the soil.

My attention was at first directed to these reactions by the examination of a remarkable guano brought in to this port some years since from the Caribean Seas. It had very much the appearance of the famous hard guano of Monk's Island, and was sold for that fertilizer in the northern cities. Upon its arrival here, it was found to be a different compound, rich indeed in phosphoric acid, the percentage proportion of which was 40 to 45, but containing little or no lime; sexquioxide of iron and alumina being the chief bases present. It was at once condemned as worthless, because it was assumed that the phosphates of iron and alumina were wholly insoluble in the soil, and therefore worthless. I did not believe this, because I saw many pieces of this rock traversed in all directions by roots which certainly would not have gone thither if they had not found nutriment. Besides, farmers had used this guano with beneficial results.

This led me to look into the question of solubility. The ordinary solvents, carbonic acid, the salts of ammonia, &c., were tried, but they exerted little or no action upon the substance. It then occurred to me to try the silicates. On the application of a gentle heat, a chemical action was immediatly apparent. The solution of the silicate became at first turbid, and then gradually cleared up in consequence of numerous purple flocculi rising to the surface. Analysis proved these flocculi to be compound silicates of soda, alumina and iron, partly gelatining with acids, and partly resisting their action. There remained, at the bottom of the vessel, a heavy sediment, darker and more ferruginous than the original phosphate, and consisting of the insoluble silicand unaltered mineral.

A statement of one of these experiments will probably be more satisfactory than a general account of the reactions. The guano or rock phos-

phate operated on had the following composition:

Sesquioxide of iron	8.16
Alumina	21.05
Lime	Trace
Phosphoric acid	29.09
Chlorine and Sulphuric acid	Trace
Water	17.13
Sand	23.79
	99.22

This guano was reduced to a fine powder and then heated for an hour, in the proportion of 1.608 grammes, to 9 cubic centimetres of a solution of silicate of soda containing 0.2468 grammes of silica to each cubic centimetre. After the reaction, it was found that there remained in solution 2.0365 grammes of silicic acid. Hence the amount consumed was 0.3467. The quantity of phosporic acid in solution was 0.4258. The silicic acid consumed bore to the phosphoric acid the proportion of 59:72, or, in equivalents of 4:3. The percentage of phosphoric acid transferred to soda was 26.46, leaving only 2.63 insoluble.

It is not material which side of the controversy we take in reference to the manner in which plants derive their food from the ground, whether it is absorbed in a state of solution in the soil, or dissolved by some special juice of the plant. High authorities can be found on either side of the question. Interpret this as we may, it is very certain that a solution must at one time have taken place in the surface of the earth, in order to bring the inorganic ingredients of plant-food into that finely divided condition without which they cannot be absorbed. So, if we would comprehend the absorption of these materials by the plant, we cannot be absolved from the study of the reactions of the soil.

We know very well what are the usual solvents of phosphate of lime. Carbonic acid generated from decomposition of animal and vegetable matters, or descending with the rain and dew, and the salts of ammonia, accomplish this result. But for the phosphates of iron and alumina these solvents do not answer, and yet some change must be effected in them if they are to be reduced to the impalpable powder required by Liebig's theory of plant-nutrition. We find their solvents, as has already been shown, in the silicates, which are of necessity present in every soil capable of supporting vegetation. It is well known that the action of carbonic acid and water upon feldspathic rocks, which in some form other, or are almost universally distributed, results in the formation of alkaline silicates. That these are mingled with others of a more complex character we all know, but nevertheless, the ultimate result of the decomposition is an alkaline silicate. These interchangeable reactions of the silicates and carbonic acid, appear to me to be an admirable provision of nature for the economy of phosphoric acid. Let us suppose phosphate of lime to be in solution, whether by the agency of carbonic acid, or any other solvent. It comes at once in contact with alumina and sesquioxide of iron in a state of extremely minute subdivision. Immediately a transfer of the acid to one or both these bases takes place, and this chemical change is aided by that physico-chemical action of the soil which so much resembles that of charcoal. The result is the formation of a phosphate far less soluble in the liquids of the soil than that originally acted upon. This refractory salt, however, is in its turn attacked by the slowly generated silicates, resulting in the formation of an alkaline phosphate on the one hand, and a double or triple silicate of alumina, sesquioxide of iron and the alkali, on the other. This, like the original feldspar which commenced these reactions, remains in the soil to be again decomposed by the perpetually generated carbonic acid. Thus alumina and red oxide of iron constitute the central point about which play all these delicate affinities, while carbonic and silicic acids are the agents by which the changes are effected.

After I had completed and published the above results of my inquiries, I was gratified to see that the distinguished French chemist, Thenard, had pursued a parallel line of investigation and arrived at similar results. He had been struck by the absence of phosphate of lime in the fertile soils resulting from the decomposition of the gurassic rocks. He further found that a solution of phosphate of lime in carbonic acid water was entirely stripped of its phosphoric acid by being kept in contact with these soils. and that the same result took place when it was mixed with alumina, or oxide of iron, prepared in the laboratory. Thus it became abundantly evident that phosphate of lime could not exist in a soluble condition in the presence of these sesquioxides. A consideration of these facts led him too, to consider the action of the silicates. His attention was especially called to the silicate of lime which was largely present in the soils he was studying. He mixed phosphate of alumina with a solution of silicate of lime, and charged it with carbonic acid, and obtained large quantities of phosphate of lime in solution. The same result was obtained by substituting the soil itself for the phosphate of alumina. Thus there is a

continual interchange between the bases of lime and alumina precisely similar to that I have already shown between alumina and the alkalies, and a perpetual storing up of phosphoric acid in the soil.

Phosphate of lime, therefore, appears to be a transitory constituent of soils, appearing and disappearing continually, while the permanent phosphate which keeps up fertility has alumina or sesquioxide of iron or both for its base.

Yours, &c.,

A. SNOWDEN PIGGOT,

59 S. Gay Street, Baltimore.

Hop-Growing.

A correspondent lately presented the *Rural New Yorker* the following as the method of hop-growing in Kent, England. The plants are raised from the cuttings of the old stocks, made in the spring. Every cutting should have three joints. These cuttings or sets are planted in rows, with the two lower joints below the surface of the soil, about three inches apart in the rows, and the latter one foot apart. If the ground is clean, they need but little attention the first season. The following spring the sets are taken up and planted in the yard. To set out a yard right the planter requires as many small sticks one foot long as he will have hills. A land measuring chain is the best thing to lay out the hills. Take white or red paint and make marks on the chain six feet apart. A cord or garden line will stretch so as to bring the hills at uneven distances apart. Our hop yards are all planted with the hills six feet apart. The small stocks are placed in the ground by the marks of paint on the chain.

The next thing done is to prepare the soil in the hills for planting. Dig the hill up one foot deep, and mix a shovelful of well-rotted manure with the soil; place the stick in the centre of the hill. Then plant the sets, three in every hill, in a slanting direction, the tops of the sets close together on the surface, with the upper joints a little above ground; the roots of the sets are trimmed pretty close before planting. The young gardens, as we call them in England, are not poled the first year, as it is said to weaken the stock. Two stakes, six or eight feet long, are sufficient the first year. The second year, two poles, fourteen or sixteen feet long, are set. If the poles are cut shorter, three are put to a hill. They are placed firmly in the ground, one foot from the centre of the hill. The land is dug with potato-forks every spring and the old vines are cut off with a knife. The space between the hills is cultivated with horse cultivators three times during the summer, and the hills are rounded up with five or six shovelfuls of earth about midsummer.

The hop is known to be ripe by the leaves closing, and the inside of the leaf being covered with a bright yellow substance. The hops are packed by the poor of London and other large towns, who grow fat and healthy during this merry season. Every day's picking is taken to the drying-house and dried on a tightly-stretched cloth made of horse-hair. Great care is taken in drying not to scorch or over-dry them. Brimstone is burned to give them a deeper yellow color. When the hops are dried they are shoveled into a cooling room and packed in bags 7½ feet long and 6 feet round, holding about 180 lbs per bag.

A dry loam or gravel soil suits hops best. They will not thrive on wet land. Sheltered vales, if the land is drained, suits best, as the wind often injures the crop. A ton per acre is a good fair crop; 3,000 lbs a large crop. One more thing—the vines are trained to the poles by tying them with rushes. This is women's work, and is fine, healthy exercise, giving them rosy cheeks.

VIRGINIA AGRICULTURAL SOCIETY.—Hon. Willoughby Newton, President of the Virginia State Agricultural Society, has invited the farmers of the State, whether members of the Society or not, to assembe in Richmond on the 29th of November, for consultation upon the interests of Virginia in her social, agricultural, and industrial relations.

HIGH PRICED TOBACCO.—On Wednesday, Messrs. Stokes & Co., of Richmond, sold one box leaf tobacco, at 116 per hundred. This tobacco was raised by A. Slade, of Caswell county, N. Carolina. Jones and Hewitt sold eighty-one boxes manufactured tobacco, "Persimmon" brand, which netted about $6,000.—*Richmond Whig.*

GRASS FOR LAWNS.—The June grass, otherwise Kentucky Blue grass, (*Poa Pratensis*) makes a close green sward for lawns, which attains its verdure early in spring and retains it until winter. Timothy, Perennial Rye Grass, or Orchard Grass are coarse grasses unfit for lawns or grass plots.

☞ He who maintains the right, though countenanced by the few, must forego all expectations of popularity till there shall be less to censure than applaud in human conduct; and, when this is the case, the millennium will have dawned.

Sunday Reading.

It shall not be amiss to speak a word or two of the *naming* of your children. "In this thing" Chrysostom, or godly father, saith, "both the godliness of the parents, and also their great care for their children, is declared, and how they have forthwith and from the beginning taught the children which were born unto them, giving them warning by the names wherewith they call them, that they should practice virtue." Let them carry the names of the Apostles, of the Prophets, of the Martyrs, of such who have been constant in the faith, and have suffered death for Christ's sake; that so they may be taught by their name to remember whose name they bear, and that they neither speak nor do anything unworthy of their name. As, if any be called "*John*," that he pray for grace, and deserve to be "filled with grace," that he give witness of CHRIST, that He is "the Lamb of God which taketh away the sin of the world," that he rebuke vice boldly, as John did in Herod, though he were a mighty Prince; or if he should be called Paul, &c., &c. Thus should our names teach us, that whither we write them, or utter them, or hear them spoken, they may put us in mind of Christian duty and godliness.

Let the sea be proud, "whose waves know their bounds;" let the beasts be proud, who live agreeable to the laws of their nature; the locusts and caterpillars, who are God's armies; the wind and storm, that fulfil His word; but let not man, the only rebel in nature that stands distinguished from the rest of the creations, not so much by his reason as by his guilt, the only heir of wrath and shame and misery, let him not be proud—pride was not made for him.

Now (in Holy Baptism) we begin to be reckoned in a new *Census*, or account. God is become our Father; Christ our Elder Brother; the Spirit the earnest of our inheritance; the Church our Mother; our food is the body and blood of our Lord; faith is our learning; religion our employment; and our whole life is spiritual, and heaven the object of our hope, and the mighty prize of our high calling.

It is no great thing to be humble when you are brought low; but *humiliatas honorata*, to be humble when you are praised, is a great and rare attainment. *In alto non altum sapere*, to have lowly thoughts when on an elevated position, as it is so seldom found among men, so is it most pleasing to God.

If a laudable practice, by being extremely difficult, is a mark of a great soul, humility must not be denied that character; for this is a virtue more difficult to excellant than to ordinary souls. In other cases, a hero is to contend with his vices or his passions or his open enemies, but to be humble he must overcome his virtues too, and that when they act, unitedly, as one body; since though other virtues naturally assist one another, they all conspire to ruin humility, which, having pride to contend with, is to deal with so subtle an adversary that sometimes by being foiled he overcomes.

The birth of CHRIST is the origin of His people, and the birthday of the Head is that of the members also. As we are crucified, together with CHRIST in His Passion, raised up with Him in His Resurrection, placed at the right hand of the Father in His Ascension, so together with Him, in this, His Nativity, we are congenite, born and brought to life.

The Divine eye looks upon high and low differently from that of man. They who seem to stand upon Olympus, and high mounted to our eyes, may be but in the valleys and low ground unto His; for he looks upon those as highest who nearest approach His Divinity, and upon those as lowest who are farthest from it.

Truth haunts no corners, seeks no by-ways. If thou profess it, do it openly. If thou seek it, do it fairly. He deserves not to profess truth that professes it fearfully; he deserves not to find the truth that seeks it fraudulently.

The Spirit makes His approach to the understanding; He will not work in a dark shop. The first thing he doth, in order to faith, is to beat out a window in the soul, and let in some light from heaven into it.

Why did our Lord choose a stable? Evidently that He might reprove the glory of the world, and condemn the vanities of this present life. *Ipsa infantila membra non-silent.* This very infant Body has its speech.

The noblest spirits are those which turn to heaven, not in the hour of sorrow, but in that of joy; like the lark, they wait for the clouds to disperse, that they may soar up into their native element.

It was pride that changed angels into devils; it is humility which makes men as angels.

Baltimore Markets, Sep. 22.

ASHES.—Pot, $9.25; Pearl, $11 50a$12 00 per 100 lbs.

COFFEE.—Rio, 17¼a19½c. gold, according to quality. Laguayra 19¼, and Java 26¼ cts. gold.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	25	28
Good do	28	31
Low Middling	32	33
Middling	33a37	30

FERTILIZERS.—Peruvian Guano, $85; California do., $65; Rodunda Island, $45; Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone, $60; G. Ober's (Kettlewells) AA Manipulated, $70; A do., $60; Ammoniated Alkline Phosphate, $55; Alkaline Phosphate, $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone ,$45; do., Poudrette, $20; Baugh's Raw bone Phosphate. $56;—all per ton of 2,000 lbs., Plaster, $4.75 per ton. Shell Lime, slacked, 6; do., unslacked, 10c. per bushel.

FISH.—*Mackerel.*—No. 1, $23a27; No. 2, $18a24; large new, No. 3, $14a15.25. *Herrings*—Shore—none, Labrador, $5.50a6.50; Potomac and Susquch'na, $3.50a9. Codfish, new, $7 50a$8.50.

FLOUR.—Howard Street Super and Cut Extra, $10 25a $10.50; Family, $13.50a14.50; City Mills Super, $10a 10.50; Baltimore Family, $15.50a16.

Rye Flour and Corn Meal.—Rye Flour, new, $6.00a 6.50; Corn Meal, $4.50a4.75.

GRAIN.—*Wheat.*—Inferior to fair Red, $2 65a2.75; prime to choice Maryland, $2.85a2 95. Choice White—scarce—$3.40; good to prime. $2.90a$3 per bushel.

Corn.—White, 90a95 cts; Yellow, 88c. per bushel.

Rye.—90a98 cts. per bushel.

Oats—Heavy to light—ranging as to character from 46 a47c. per bushel.

HAY AND STRAW.—Timothy $23a25, and Rye Straw $21 a22 per ton.

BEANS.—Common, $1.50a2.00 as to quality.

POTATOES.—$3 50a4 00 per bbl.

PROVISIONS.—*Bacon.*—Shoulders, 20a20¾ c.; Sides, 20¾c; Hams, plain bagged, 24c.; sugar cured, 26c. per lb.

SALT.—Liverpool Ground Alum, $2.15a2.20; Fine, $3.10 a3.25; Turk's Island, 60c. per bushel.

SEEDS.—Clover, held at $8.00; Timothy, $4.00a4.25 Flaxseed, $3 45

TOBACCO.—We give the range of prices as follows:

Maryland.

Frosted to common	$2.00a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10 00a15.00
Fancy	17.00a25.00
Upper country	3.00a30.00
Ground leaves, new	3.00a12.00

Ohio.

Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13.00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.37a2.42 per gallon, in barrels.

WOOL—We quote: Unwashed, 30a32 cts. per lb.; Tub-washed, 50a53 cts.; Fleece, common, 44a48 cts.; Pulled, No. 1, 30a35 cts.

CATTLE MARKET.—Common, $6 75a7.25; Good, $8.00; Prime Beeves, $8.25a8.50 per 100 lbs.

Sheep—5a7 cents per lb. gross.

Hogs—$15.00a15.50 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, Sep. 22, 1866.

BUTTER.—Ohio, in brls. and kegs, solid packed, 28 to 30 cts.; Roll, 35; Virginia and Pennsylvania in kegs and tubs, 28 to 30; Glades, 35; Goshen, 44.

BEESWAX—42 cts.

CHEESE.—Eastern, 20; Western, 18 to 20.

DRIED FRUIT.—Apples, 10; Peaches, no supply.

EGGS—In barrels, 20 cents per dozen.

FEATHERS—70 cents for good Southern.

LARD.—Brls. 22, kegs 23, jars and other country packages 25 cents.

TALLOW.—12 cents.

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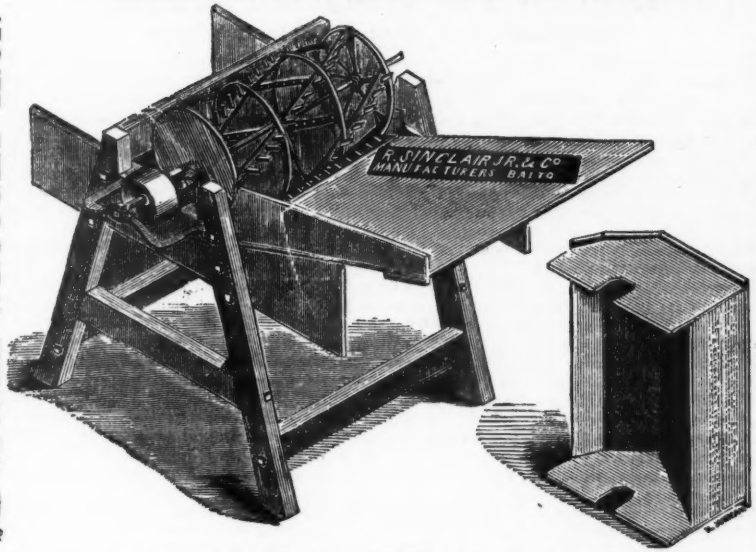
SINCLAIR & CO'S

SPIRAL WROUGHT IRON



Elastic Cylinder Thrasher,

MADE EITHER WITH OR WITHOUT STRAW CARRIERS.

The latest improvement, and the most valuable made in our Thrashing Machine Cylinders, is the plan of attaching spiral wrought iron bars, instead of the ordinary horizontal arrangement.

There is an obvious reduction of draught; the cylinder receives the wheat faster, consequently will thrash with greater rapidity. The teeth passing those in the concave alternately, produces less noise or surge, so objectionable to straight beater cylinders; causes less wear on the boxes and axle and less risk of derangement.

We make four sizes of the above, viz: 16 inch, 20 inch, 25 inch and 30 inch, with and without straw carriers.

ALSO ON HAND IN QUANTITY,

Sinclair & Co's Spur Gear Horse Powers,

BEVEL GEAR POWERS, several sizes,

PELTON'S CELEBRATED PORTABLE HORSE POWERS,

Namely: 4 horse, 6 or 8 horse, and 10 horse.

☞Reading's Patent Horse Power Corn Sheller,

With and without Cleaner. HAND AND POWER SHELLERS, all sizes.

CHAMPION CORN and COB CRUSHERS,

PLANTATION GRIST MILLS,

SUGAR CANE MILLS AND EVAPORATORS,

Iron Section FIELD ROLLERS, SERRATED CLOD CRUSHERS, Monroe's Patent ROTARY HARROWS, &c., manufactured by

R. SINCLAIR & CO.,

Nos. 58, 60 *and* 62 *Light street, Baltimore, Md.*

aug

FLOUR OF RAW UNSTEAMED BONE.

Price Reduced to $60 per ton in Baltimore.

We are now prepared to supply the farmers of Maryland, Delaware and the Southern States with a *Bone Fertilizer*, such as the agricultural world has sought for in vain, since the value of bones as a fertilizer became known. Every body knows that the finer powder a fertilizer is reduced to, the more uniformly it is distributed through the soil, and the more rapid its solubility and action. This cannot be denied, and it applies with greater force to bones than any other fertilizer. Although *bones* have been heretofore used in a condition of comparatively coarse particles, requiring a long time for them to yield their value, yet they have acquired a reputation, after use for more than half a century—*even in this imperfect condition*—not attained by any other fertilizer. From their imperfect preparation they have acquired the name of a slow fertilizer, and for years the world has sought for some invention that would reduce *bones* to the *condition of Flour*.

This invention has at length been realized, and we are now prepared to confer upon farmers, generally, *its inestimable benefits*.

Heretofore, in order to give quick action to Bone Dust, acid has been used to dissolve them, but the necessity for this has now passed. Bones, reduced to the *fineness of flour*, do not require vitrol to render them immediately active; on the contrary, it is the opinion of the best agricultural chemists, that *Bone Flour* is quite as soluble as dissolved bone. This opinion is confirmed by experiment made this season; and, further, it is consistent with a common sense view of the nature of things.

This fact being established, the Flour of Bone is actually worth one-third more than dissolved bone, for this very plain reason, *namely*, 100 *lbs. of Flour of Bone contains the actual value of* 100 *lbs. of Bone; while* 100 *lbs. of dissolved bone or super phosphate, contains only* 66 *lbs. of bone, the rest being acid and water, necessary to dissolve it.* This is so plain that it need only be stated to perceive its truth; hence, we affirm, that one ton of *Flour of Bone* is worth *one and a half tons of dissolved bone or super phosphate.*

The ordinary Bone Dust cannot be compared with the *Flour of Bone.* The difference in fineness adds more than one hundred per cent. to its value, and must make a revolution in its use. Its great superiority will be so striking and manifest that no farmer who once uses the *Flour of Bone* will ever return to the use of the ordinary Bone Dust.

Further, it is an important fact that the *Flour of Bone* is prepared only by the AMERICAN BONE FLOUR COMPANY, who are the patentees and owners of the only machinery by which it can be made. This Company is composed of men of the highest mercantile standing, which affords the best guarantee of the purity of their Bone Flour. Moreover, we are authorized by them to have it inspected and analyzed by Dr. Liebig, Agricultural Chimist of this city.

We call especial attention to the Doctor's analysis, herewith published; also to the correspondence had with him on the subject, in which it will be found he confirms all we have said in regard to the vast importance of this improvement in the preparation of Bones, to the agriculture of the country.

The Flour of Bone is put up in tight barrels, and is branded with the Company's trade mark, and the words "Flour of Bone, Manufactured by the American Bone Flour Company; John S. Reese & Co., General Agents, Baltimore," which trade mark and brand is the guarantee of genuineness.

The Bone from which it is prepared is warranted unburnt, and to contain all the gluten and organic matter pertaining to unburnt bone. This is proved from the accompanying analysis by Dr. Liebig.

It will be noticed that this Bone contains a large per cent of *ammonia*, which is the result of its nitrogenous organic matter. No manufactured super phosphates or preparations, called dissolved bone, contains an equal amount of *ammonia*, and we are very sure none can be found containing as much Bone phosphate equally soluble.

We feel conscious that in furnishing this article to the farmers and planters of the Southern States, we are contributing vastly to the interest of agriculture.

JOHN S. REESE & CO.,
General Agents for Southern States,
71 SOUTH STREET, BALTIMORE, MD.

Is the Flour of Bone, prepared by the American Bone Flour Company, Pure?

The only question that any one can ask, or need ask, in regard to this Flour of Bone is, whether it is *pure*, unburnt bone, for if it is pure, then its superior value and importance is a settled fact. Now, how are we to satisfy farmers on this point? First then, it is by no means a difficult matter for us to know with *certainty* that this bone is absolutely pure, that it is not adulterated, and it is not a secret, for we have no secrets. In order then to test its purity, we simply take from the barrels 100 parts, say 100 ounces, or 100 grains, put it in a suitable vessel, called a crucible, then place the crucible on a hot fire, and burn the bone to a *white ash*, which will be done in twenty minutes, then, after cooling, weigh the ashes and see how much has been burnt away. *Pure*, unsteamed bone will lose fully one-eighth of its weight by burning, which is the animal matter; now if it losses less, it is certainly adulterated or steamed, for if Plaster is mixed with it, it will not lose so much, because plaster will not burn, and there is nothing that can be used to adulterate with that will burn away in the same proportion, hence this is an infallible, certain test. We have frequently *tested this Bone Flour*, and in every instance have found it entirely free from adulteration. We continue to test all that we receive, hence we are able to give our customers the positive assurance that the Flour of Bone prepared by the Bone Flour Company is absolutely pure; the question of value is then settled, for the value of pure bones is well known, and when reduced to the fineness of flour, their value is increased a hundred fold, and they are as quick and active as dissolved bone or Super Phosphate, and are worth vastly more.

JOHN S. REESE & CO., BALTIMORE, MD.

RODUNDA ISLAND GUANO.

This GUANO is from a very valuable and recently discovered deposit in RODUNDA ISLAND, in the Caribbean Sea, W. I.

From an analysis made by Professor J. NEWLAND, of London, (for many years principal assistant to Professor Way,) this Guano is found to contain as follows:

Organic matter (yielding Salts of Ammonia)	24.67
Neutral *Soluble* Phosphate of Lime	6.98
Tribasic Phosphate of Lime	43.83
Nitrogen	1.13
(Equal to Ammonia)	1.38

This GUANO has been used for many years in the West India Islands in the cultivation of sugar cane and cereals with great success, and is now introduced for the first time to the farmers and planters of the United States.

It is as *fine* as *flour*, free from stone and all foreign substances, and the very article to be used by the drill.

The very low price at which this Guano can be sold, $25 per ton, put up in strong bags, places it within the reach of every farmer, and avoids the risk of large loss frequently incurred in the purchase of high priced fertilizers. For sale only by

WM. CRICHTON & SON,
Sole Agents for the United States,
BALTIMORE

sept-2t

FRUIT AND ORNAMENTAL TREES
FOR FALL, 1866.

We respectfully invite attention of our customers to our stock for the coming season, superior in both variety and quality to any we have heretofore offered:

Standard Trees for the Orchard,
Dwarf Trees for the Garden,
Small Fruits of all kinds,
Shade Trees, of the most desirable varieties,
Deciduous Ornamental Trees,
Hardy Flowering Shrubs,
Hardy Climbing Shrubs,
Roses, Hedge Plants, &c., &c.

Descriptive Catalogues mailed to any address, or can be had on application at the office of the American Farmer."

EDW'D J. EVANS & CO.,
York, Pennsylvania.

aug-4t

CALIFORNIA GUANO.

We have purchased the cargo of GUANO per Ship "GEORGES," arrived at New York, during the present month, from the Pacific Ocean, from the immediate parallel of latitude with the celebrated Chincha Islands of Peru.

This Guano has the color, fineness, and all the characteristics of Peruvian Guano. It contains, by analysis:

Organic Matter	21.50
Ammonia	4.80
Soluble Salts, chloride of Sodium, and Sulphate of Soda	4.50
Phosphate of Lime	39.00

It is the *first* and *only real rival* and *competitor* to Peruvian Guano. We earnestly invite and solicit the attention of Agriculturists to this article, and thereby encourage the development and importation of such Guano as will fairly compete, and at much less cost, with the old and established rates of Peruvian Guano.

It is handsomely put up in strong bags; and we guarantee it to be a *genuine pure Guano* of direct importation from the Pacific coast. For sale by

WM. CRICHTON & SON,

sept-2t. **BALTIMORE.**

THE BALTIMORE CITY

☞Fertilizing Manufacturing Company

Have entered into contract with the city of Baltimore for the

REMOVAL OF ALL

NIGHT SOIL, DEAD STOCK & REFUSE MATTER,

And will be prepared in a short time to furnish Farmers and Gardeners with

Superior Fertilizers,

At LOW PRICES; also,

GROUND BONES,

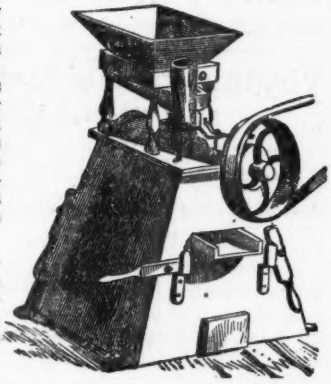
IN QUANTITIES TO SUIT.

Further particulars will be given in a future advertisement.

JOS. J. STEWART, President.

Wm. H. KIMBERLY, Treasurer. july-tf

PREMIUM FARM GRIST MILL.



These UNRIVALLED Portable Grist Mills have for many years been in constant use by Farmers, Planters, Stock Feeders, and others, throughout the United States, South America, Cuba, Texas, California, &c., and for simplicity, durability and effectiveness, has no superior. These Mills are adapted to one or two horse railway power, or two or four horse lever power, or gin, steam or water power, and will grind Corn, Rye, Oats, Wheat, &c , fine or coarse, as may be desired, from 5 to 20 bushels per hour, according to degree of fineness required and power applied. The grinding surfaces are made of Chilled Iron, and are of the most durable character. The grinding parts of the Mill can be replaced at a small expense.

PRICE—with Sieve arranged for sifting Corn Meal for family use, while grinding.....$50

" with Bolting Machine attached, for making family Flour, and the Sieve arrangement for making Corn Meal $75

LARGE HAND MILL GEARED.....$22.

ALSO MANUFACTURERS OF

RAILWAY AND SWEEP HORSE POWERS, THRESHERS, CIRCULAR SAW MILLS, FEED CUTTERS, SHELLERS, &c.

Send for Catulogue and address

sep-3t **WM. L. BOYER & BRO., Philadelphia, Pa.**

The School of the Good Shepherd.

This is a Christian School for Young Ladies, under the care of the Sisterhood of the Good Shepherd, connected with St. Luke's Protestant Episcopal Church, Baltimore.

It aims to supply the want, so deeply felt, of a School conducted on Christian principles, where religious and secular training may go hand in hand.

The next Scholastic Year will commence on WEDNESDAY, September 12th, 1866.

The Sisters can receive ten Pupils into their house as boarders. As the number is limited, early application should be made by parents who may wish to secure places for their children.

TERMS:—$300 for the Scholastic Year.

Circulars may be obtained from, and application may be made to,

SISTER CATHARINE, *Sister's House,*
No. 2 Waverly Terrace, Franklin Square, Baltimore.

CHAS. W. RANKIN,
RECTOR OF ST. LUKE'S CHURCH, BALTIMORE. july

CHAPMAN & VAN WYCK,

DEALERS IN

PERUVIAN GUANO,

sep-6t **170 Front street, New York.**

Virginia Female Institute

STAUNTON, VA.

REV. R. H. PHILLIPS, A. M., Principal.
REV. J. C. WHEAT, A. M., Vice "

Assisted by a full corps of experienced Professors and Teachers.

This Institution was originally built by a company of gentlemen in Virginia and Maryland, to secure the highest order of education for their daughters, on Christian, but not sectarian principles. It is managed by a Board of Stockholders; a local Board of Trustees, and has a Board of Visitors, composed largely of gentlemen who have been patrons of the school.

The LOCATION is one of the best in the State, for easy access, salubrious atmosphere, and refined society. The BUILDINGS contain sixty rooms and are comfortably furnished.

The MUSIC department is furnished with new instruments, and Teachers of established reputation. The other departments have suitable apparatus for the illustration of the Natural Sciences, &c.

The next Session will commence on WEDNESDAY, September 26th, 1866.

For Circulars with full information, address

REV. R. H. PHILLIPS,
STAUNTON, VA.

REFERENCES to former patrons, among them, General R. E. Lee, Hon. A. H. H. Stuart, Hon. A. T. Caperton, Dr. R. H. Stuart, Hon. J. B. Baldwin, Hon. R. L. C. Moncure, Dr. F. T. Stribling, Gen. F. H. Smith, Gen. William N. Pendleton, &c. sep-2t

OSAGE ORANGE PLANTS.

Instructions for proper management of Osage hedges sent free to all applicants.

We have been very successful in raising superior plants this season, and are able to reduce our last year's prices.

For fall delivery only six dollars per 1,000, fifty dollars per 10,000. THOMAS MEEHAN, Nurseryman,
sep-2t Germantown, Pa.

EARLY GOOD RICH POTATOES.

The demand for this—the best early potato—could not be supplied last spring.

A. W. Harrison's system of cultivation is famous for producing a *vigorous and healthy stock*. We have secured a portion of his crop for our sales this season. Circulars, with Harrison's mode of growing, sent gratis.

THOMAS MEEHAN, Nurseryman,
sep-2t Germantown, Pa.

SAUL'S NURSERIES,

WASHINGTON CITY, D. C.

The undersigned offers for the fall trade an extensive stock of vigorous, well-grown fruit trees.

PEACH TREES—all the popular kinds—a fine lot of splendid trees Pears—standard and dwarf—a large stock. Also, Plum, Cherry, Apricot, Nectarine, Figs, &c.

Grape Vines—Delaware, Concord, Iona, Israella, Adirondac, Crevelling, Diana, Maxatawny, Roger's Hybrids, &c.

Pear, Plum, Quince, Mahaleb, Manetti Stocks, &c.

Strawberries are grown extensively. Fine plants of the new standard kinds can be supplied—new native—New Jersey Scarlet, Russel's Prolific, Buffalo, French's Seedling, Green Prolific and the fine new Foreign Sorts, Tetian, J. Powell, Premier's, President, Prince of Wales, Sir Jos. Paxton, &c. The standard Berries of our Washington markets, Jucunda, Seedling Eliza, Victoria, Triomphe de Gand, Wilson's Albany, &c.

The new Roses of 1865, including that finest of all Yellow Teas, "Marechal Niel."

Monthly Carnations, large plants for winter blooming. New Chrysanthemums, Phloxes, Fuchsias, and other plants suitable for Florists. Zonale and Variegated Geraniums of the newest kinds. Dutch Flower Roots, direct from one of the best growers in Holland.

Catalogues mailed to applicants.

sep-2t JOHN SAUL, Washington City, D. C.

WHEAT AND FIELD SEEDS.

To Farmers and Planters I offer several varieties of *Imported Wheats*, carefully selected. Also, a general assortment of *Garden and Field Seeds* in their season. *Goodrich Seedling Potatoes*, &c.

Trade lists and descriptive circulars on application.

WILLIAM HACKER, Seed Grower and Importer,
sep-3t Philadelphia, Pa.

PERUVIAN GUANO.

We inform our numerous patrons that we have a full supply of No. 1

Peruvian Guano,

of direct importation into this market, per ship

CHARTER OAK,

which we will deliver from the

GOVERNMENT WAREHOUSES,

thereby guaranteeing its purity, free from adulteration and "manipulation." For sale in quantities, to suit, at lowest prices,

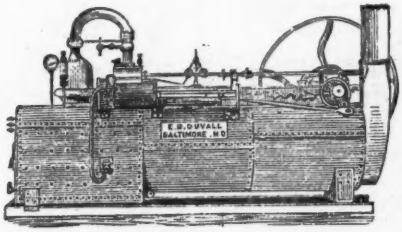
WM. CRICHTON & SON,

Wood street, Bowly's wharf,
OPPOSITE CORN EXCHANGE,

sept-2t. **Baltimore.**

E. B. DUVALL & CO.,

E. B. DUVALL. E. B. DUVALL, Jr. H. WADLEIGH. J. WILLIAMS.



MANUFACTURERS OF

PORTABLE STEAM ENGINES

AND

CIRCULAR SAW MILLS,

AND DEALERS IN—

Corn Mills, Saws,
Saw Gummers,
Gum and Leather Belting,
Gum Hose,
Gum Packing,
Steam Guages,
Whistles,
Boiler Tubes,
Boiler Plate, &c. &c. &c.

ALSO, AGENTS FOR THE

DOUGLASS PATENTED PREMIUM

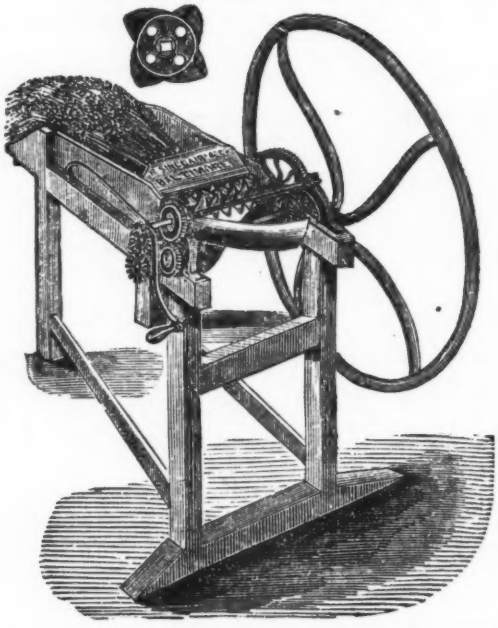
SORGHO, OR SUGAR CANE MILL.

24 S. HOWARD STREET, Baltimore, Md.

aug-6m **Shops, at Laurel, Prince George's Co., Md.**

SINCLAIR & CO.'S

PATENT SCREW PROPELLER



HAY AND STRAW CUTTER.

The above cut represents the PATENT SCREW PROPELLER HAY AND STRAW CUTTER. *The Cylindrical* Straw Cutter, although invented over thirty years ago, still retains its high reputation for efficacy and durability.

With the present feed roller (screw or spiral) the article is greatly improved, and rendered more simple. ALL efforts of inventors that have been made, in EUROPE or in the UNITED STATES, towards improving or inventing STRAW CUTTERS, have failed to produce a machine of equal perfection as our Patent Propeller.

We could (if necessary) produce thousands of certificates from our Southern and Southwestern farmers and planters, to show that the Propeller is undoubtedly the most perfect cutter they had ever used. And of late years, wherever our Propeller has been introduced in the Western or Northern markets, they have always been sought after by the intelligent farmer.

We make five sizes of the above cutter, viz:—8-inch, 9-inch, 11-inch, 13-inch, and 15-inch.

We also make an 8-inch with three knives, at a charge of $2 additional over the two-knife cutter of the same size.

The three first sizes are operated by hand, and the two large sizes by horse power.

We also make four sizes of our PATENT MASTICATOR, which is considered the best machine of the kind in this country.

R. SINCLAIR & CO.,

aug 58, 60 and 62 LIGHT STREET, BALTIMORE, MD.

BLOOMINGTON NURSERY.

15th YEAR.

8 LARGE GREENHOUSES.

275 Acres Fruit, Ornamental and Nursery Stock,

A very complete assortment, including

500,000 APPLE, 1 to 4 year, with 100,000 1 yr, 1,000 $50. Of BEN DAVIS, (New York Pippin,) 20,000 fine, 2 and 3 year trees. RED ASTRACAN, 10,000, 2 and 3 years.—10,000 SIBERIAN CRAB, 3 and 4 years.

150,000 PEAR, Standard and Dwarf, including fine yearling standard grafts, 1,000 $120.—PEACH, PLUM and HARDY CHERRY Trees, a fine stock.

500,000 GRAPE, largely Concord layers, Catawba, Clinton, Creveling, Delaware, Hartford, Ives, Iona, Rogers' Hybrids, of which No. 4, by the 1,000. Also Grape Cuttings. ☞25 Acres of Grapes here.

30,000 CURRANTS, general assortment.

100,000 STRAWBERRIES, over 40 sorts, with fine collection of *Small Fruits*.

30,000 DOOLITTLE RASPBERRY, 5,000 BELLE DE FONTENAY, $16 per 1,000.

500,000 APPLE STOCKS, 1 and 2 year, $10 and $15.

500,000 APPLE ROOT GRAFTS, 10,000 $100.

150,000 PEAR, QUINCE, CHERRY, and other stocks.

10,000 RHUBARB or "WINE PLANT."

1,000,000 OSAGE ORANGE, Hedge Plants, 1,000, 1st class, $3; 100,000 $250.

500,000 EVERGREENS, mostly medium and small sizes.

200,000 ORNAMENTAL TREES, large and small, Abele, Ash, Beech, Birch, Catalpa, Elm, Larch Linden, Maple, Mountain Ash, Julip Tree, &c., &c.

2,000 ALTHEA, superb dble, named, 2 ft, 100 $12.

10,000 DEUTZIA, EUONYMUS, Honeysuckle, Lilac, Snowball, Spireas, Syringa, Tamarix, Wigelia, strong plants suitable for retailing, 100, $6 to $12

20,000 ROSES, all classes, old and new varieties.

20,000 TULIPS, Hyacinths, Crocus and other hardy Bulbs for Fall planting. Also *Greenhouse* Plants, &c., &c.

Packing Carefully done. Shipping Facilities excellent.

☞WHOLESALE AND RETAIL CATALOGUES sent for 2 Red Stamps.

F. K. PHOENIX,

oct-3t *Bloomington, McLean Co., Ill.*

GRAPE VINES!

WE WISH TO CALL THE ATTENTION of those intending to purchase VINES to the excellency of our Stock.

OUR UNDIVIDED ATTENTION

Is given to the production of Vines, which enables us at all times to supply their wants through the growing season.

☞THE VINES HAVE NOT BEEN FORCED BY HEAT OR STIMULANTS.

☞ALL VINES ARE WARRANTED TRUE TO NAME.

FULL INSTRUCTIONS

GIVEN TO ALL PURCHASERS FOR THEIR TREATMENT.

☞Samples of Vines sent at Wholesale Rates.

For PRICE LIST, address

HOLTON & ZUNDELL,

HAVERSTRAW,

ROCKLAND COUNTY, N. Y.

PARSONS & CO.,

Offer for the FALL TRADE a large stock of all the GOOD VARIETIES of

GRAPE VINES.

One of the best sold for Vineyards at the South is the

DELAWARE,

Which they offer of very fine quality; two years transplanted, and unusually strong—$35 per hundred, $275 per thousand. One year, No. 1, strong plants—$25 per hundred, $200 per thousand. No. 2, $20 per hundred, $150 per thousand. No. 3, $12 50 per hundred, $100 per thousand. IONA, No. 1, $75 per hundred, $600 per thousand. No. 2, $50 per hundred, $400 per thousand. IVES SEEDLING $25 per hundred, $200 per thousand. CONCORD $12 per hundred, $100 per thousand. NORTON'S VIRGINIA $40 per hundred, $300 per thousand. In classifying their plants they make no EXTRAS. Their No. 1 plants are the largest and best of their stock, and their average quality is not allowed to be diminished by selecting the largest for retailing as EXTRAS.

All the vines thus offered are grown without bottom heat, from well ripened wood, and in good, deep soil, not injured by extra manuring.

For list of other sorts of vines, they refer to their descriptive catalogue.

ROSES.

These are of all the best sorts, of Hybrid Perpetuals, Mosses and Teas, not budded or grafted, but upon their own roots, at $20 per hundred, $150 per thousand.

They offer, also, the new sorts of 1864 and 1865, for prices of which see the ROSE CATALOGUE. These, too, are on their own roots.

ALSO, A LARGE STOCK OF PEACH TREES, AND OTHER TREES AND SHRUBS.

They invite attention to their **CAMELLIAS,** and other plants for Southern climates.

Address PARSONS & CO.,

Oct. FLUSHING, NEW YORK.

THOROUGH BRED STOCK!

DOMESTIC AND ORNAMENTAL FOWLS FOR SALE!

The undersigned still continue to furnish and ship ALL BREEDS AND DESCRIPTIONS OF STOCK AND FOWLS, OF BEST QUALITY, to all parts of the United States or Canadas—comprising **160 Breeds and Varieties—120 of Fowls alone!**

LARGEST COLLECTION

OF PURE BRED FOWLS AND FANCY STOCK IN AMERICA!

Reference, C. N. BEMENT, Poughkeepsie, New York.

Enclose stamped and directed envelope for CATALOGUE and ANSWER TO INQUIRIES. Persons will mention particular varieties desired. Orders booked and filled in turn. First in, best chance.

Address,

COX, SCARFF & CO.,

oct Or J. C. COX, Osborn, Greene County, Ohio.

SHELL LIME

For Building or Agricultural Purposes,

FOR SALE IN ANY QUANTITY AT OUR KILNS

OPPOSITE FORT McHENRY, CANTON,

OR AT

No. 3 Exchange Place, Baltimore.

BOWEN & MERCER.

A liberal Commission allowed to Merchants on orders. Vessels wanted to carry Lime.

oct-2t

FRUITLAND

GARDEN AND NURSERY,

NEWARK, DELAWARE.

350,000 PEACH TREES for sale. My stock of Peach Trees is admitted to be the finest and largest in the country. 150,000 of them Hale's Early. 200,000 of the celebrated Orchard varieties, as follows:

Troth's Early, Early York, Yellow Rareripe, Crawford's Early, Old Mixon Free, Moore's Favorite, Ward's Late Free, Harker's Seedling, Reeves' Favorite, Mary's Choice, Stump the World, Crawford's Late, Crockett's White Smock, Late Heath Free and Cling.

I have a very large stock of

Standard and Dwarf Pears, Apples, Cherries, Plums, Apricots and Nectarines, Grapes and Small Fruits in variety, Evergreens and Ornamental Trees, Roses, Shrubbery, Hedging Plants. Greenhouse and Bedding Plants. Rhubarb and Asparagus, &c, &c.

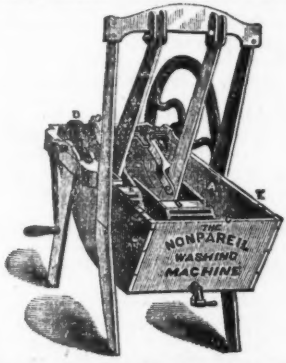
Those that forward their orders early can depend upon having them filled with any kind of No. 1 stock pertaining to the Nursery business.

Send Stamp for Catalogue.

RANDOLPH PETERS,

oct-3t NEWARK, DELAWARE.

THE NONPARIEL WASHING MACHINE



Combines large capacity, great strength, and entire *ease* and *simplicity* of operation.

It saves *two-thirds the time and labor*, and half the soap required in washing by hand; and FIVE YEARS' experience proves it to be the ONLY Washing Machine made which *stands the test of time and use.*

It is geared to give *six strokes* of the plungers for *one turn* of the handle—or, when working leisurely, about *forr hundred strokes a minute*; thus enabling a boy or lgir of fifteen years to do a week's washing for a family of six or eight persons, in from two to three hour's time; and being a *squeezing machine*, it is guaranteed not to injure the finest fabric.

Dealers supplied. Send for descriptive circular to

OAKLEY & KEATING,
184 Water street, New York.

Sold by **RICHARD CROMWELL,**
july-6m No. 46 and 48 Light st., Baltimore.

Hightstown (N. J.) Nurseries.

120,000 Peach Trees,

Of all the leading market varieties, of which 40,000 are HALES' EARLY—the earliest by two weeks, and hardiest of any known variety.

Also, APPLES,
PEARS, and
CHERRIES,
Both dwarf and standard.

PLUMS, APRICOTS, NECTARINES, &c.

A large stock of STRAWBERRIES, including Agriculturist, Wilson's Albany, Jucunda or 700; BLACKBERRIES, RASPBERRIES,—including the Philadelphia,—and other small fruits.

For Circulars, address

ISAAC PULLEN,
jy,au,s,o,n,&f,'67 HIGHTSTOWN, N. J.

BUSINESS AGENCY.

American Farmer Office,

EDWIN A. LEWIS,
Proprietor of Agency.

FOR THE PURCHASE OF

Guanoes, Super-Phosphates, Bone Dust and Other Fertilizers, Machinery, Farm Implements, Fruit Trees, Seeds, Cattle and Stock of all kinds.

☞ See Editorial notice, August number of the "American Farmer." ☜

Having no personal interest whatever in any FERTILIZER, MACHINE, or IMPLEMENT, I am enabled to make unbiassed selection, and will purchase from such sources only as are believed to be *entirely reliable.*

My arrangements with Manufacturers and Dealers, are such that I can furnish any article of

Fertilizers, Implements, or Trees,

Without charge of Commission to the Purchaser.

☞ *Purchases made for cash only, and orders accompanied by a remittance promptly and faithfully attended to.* Address

EDWIN A. LEWIS,
American Farmer Office,
No. 52 SOUTH GAY STREET,
aug. Baltimore.

St. Clement's Hall,

A CLASSICAL AND SCIENTIFIC SCHOOL FOR BOYS.

Ellicott's Mills, Maryland,

TEN MILES FROM BALTIMORE.

REV. J. AVERY SHEPHERD, - - - - - - - - - RECTOR.

Building and Location.—The Hall is a commodious and beautiful edifice, erected expressly for this School. Great attention has been given to its construction. Its ample dining-room, its school and class-rooms, dormitories and teachers' apartments, have been arranged with especial care to combine, as far as possible, the conveniences of a school with the comforts of home. It is but a few minutes walk from the depot of the Baltimore and Ohio Railroad, in a region celebrated as being one of the most beautiful and healthy in the country.

The Site, comprising fifteen acres, and commanding an extensive and delightful prospect, was selected especially on account of its ample play-grounds, which, while in view from the Hall, are secluded from public observation, and are admirably adapted to all kinds of summer and winter sports for boys, including bathing and skating.

Course of Studies.—This is designed to be in every respect a FIRST CLASS SCHOOL. Pupils will be prepared for admission into any American College, at the same time the common branches of an elementary English course will be thoroughly taught. Mathematics, Penmanship, Composition and Elocution will receive especial attention, and great care will be taken to render the pupils expert accountants. Scientific subjects will be illustrated by demonstrations and experiments. Many subjects of importance, on which, as yet, no school books have been prepared, are taught in a series of familiar Lectures, by which means, also, the studies of History and of English Literature will be greatly facilitated. The elements of Vocal Music will be taught to all the pupils. Instruction in the Modern Languages, Drawing and Instrumental Music, will be given by competent Professors.

To such young men as may desire to pursue a more extended course, an opportunity will be given to prepare for an advanced class in college, or to continue their scientific studies and the application of Mathematics to Civil Engineering, Navigation and Astronomy.

Teachers.—The Rector has been engaged in the South for more than twenty years, in the work of education. He will be aided by Professors and teachers of acknowledged ability and experience.

Care of Pupils.—The domestic arrangements will be under the charge of Mrs. Shepherd, and every effort will be made to surround the pupils with the comforts of home. They will occupy, with their teachers, the same building with the Rector, and be regarded as members of his family. Strict attention will be given to their health, exercise and personal habits, and also to the cultivation of courteous manners, as a highly essential part of education. Their moral and religious training will be made an object of especial care.

The Religious Exercises of the school will be in accordance with the services of the Protestant Episcopal Church.

Reports of the Studies, deportment and progress of the pupils will be regularly sent to parents and guardians.

Requirements.—Pupils will bring towels, napkins and rings, dressing gown and slippers. Clothing, and all other articles, must be distinctly marked with the name in full. A neat and appropriate uniform will be introduced.

The Session this year (1866) will open by the middle of September, and continue until the end of the following June.

TERMS,

Per Session of Ten Months—one-half in advance, the remainder Feb. 1.

Board and Washing, full English course, Classics, Vocal Music and French.....$350.00.
Other Modern Languages, Drawing, Instrumental Music, at Professor's charges.
Bedding $25, (to be paid but once.) When furnished by the pupil, no charge.
Pew rent..... 3.00
Books and Stationery, if desired, will be furnished at city prices.

Pupils will be charged from the date of entering until the end of the session in June. No deduction will be made on account of absence or withdrawal.

THERE WILL BE NO EXTRA CHARGES.

☞ List of references appear in July No. of the American Farmer. aug

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Yearling Rams and Ewes, also Ram and Ewe Lambs, *pure bred*, from imported stock. Also

ONE ALDERNEY BULL CALF,

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Early Goodrich Potatoes.

Yield this season 350 bushels per acre, double that of the White sprout, and of far better quality. All who have tried it here, say they will plant no other early sort.
Also, a few bushels of the

MONITOR,

The most productive and best late potato I have yet tried. Planted seven other kinds, but can speak favorably of the above only in all respects.
PRICE $1.00 per peck, $3.00 per bushel, package included. Delivered on cars or steamboat on receipt of price.

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Will supply assortments of the following at lowest rates:
Fruit and Ornamental Trees and Shrubs of every kind.
Strawberries, the climax collection of the world, comprising 200 select varieties, including all the best field varieties for market; and also those suited to the Family, Garden and Amateur.
Bulbous and Tuberous Flowers of every class and all varieties. An unrivalled assortment.
Tree and Herbaceous Pœonies, above 400 splendid varieties of the most georgeous of all Flowers.
Hardy and Perennial Flowering Plants, above 1200 species and varieties, comprising the most estimable, and the most varied in character and beauty.
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Receive and sell PRODUCE, of ALL kinds, on the most favorable terms.
We send our *Weekly Price Current*, to all consignors; also a marking plate, free of expense.
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STEAM FIRE ENGINES,
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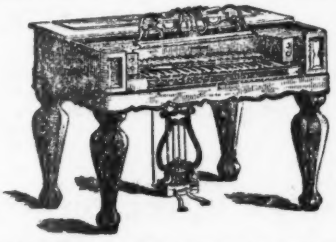

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1,000,000 Strawberry Plants, for the Fall of 1866.

We offer upwards of One Million STRONG, HEALTHY, PLANTS, of the following leading

STRAWBERRIES,

Grown from young vigorous plants, with the cleanest and most careful culture, and on soil particularly favorable to the Strawberry, and are prepaid to supply the AMATEUR as well as the MARKET GARDENER, with the *best* plants of the *best* kinds.

WILSON'S ALBANY.—The most productive berry grown, and pre-eminently the *great market berry*.

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AGRICULTURIST AND RUSSELL'S PROLIFIC.—Two of the largest, most productive, and valuable new American varieties.

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JUCUNDA, OR KNOX'S 700.—Now commanding such a large share of public attention, which for beauty, size, productiveness, and superior quality, will doubtless rank among *the best* of Strawberries.

And a choice collection of other well known kinds.

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We are prepared to forward plants by mail, *postage paid*, to all parts of the country—the cheapest and best way to obtain plants, when ordered in small quantities.

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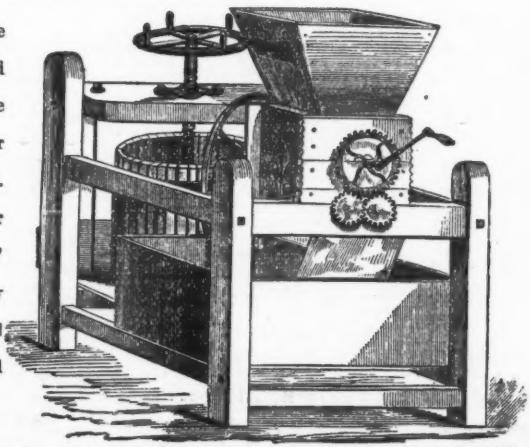
Scully's Patent Portable Cider and Wine Mill and Press Combined.

We would respectfully invite the attention of farmers, merchants and others interested in the manufacture of Cider and Wine, to the superior merits of the above named machine. It possesses great advantages over the old, and even modern "Massive" Mills, so long in use, and needs only a trial to satisfy any one that it will perform all that it is recommended to do.



The above cut is a fair representation of the Mill, with the exception that we will use two tubs this season instead of one, as heretofore.

We will also make two sizes. One size for hand and a large size for both hand and power.

For further particulars, send for a Circular. Manufactured and for sale by

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CAST STEEL PLOWS,

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These Plows are made of a superior quality of Cast Steel, recast in moulds into the exact shape required for the Mould-boards, Landsides and Shares. These are then highly tempered, ground and polished.

Every Plow is warranted to *scour* in any soil Any section can at any time be replaced by a duplicate, or if the Share is worn, Steel can readily be welded on to the point.

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Guano and Fertilizers.

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It shall be my aim to offer no article but of character, and what it is represented to be. Having fitted up an establishment at *Locust Point, Baltimore*, complete in all its parts—employing competent counsel and assistants—with nothing to conceal to the agriculturist—I confidently appeal to the agricultural public. It will always give me pleasure to exhibit my works and plan of operation to the Farmer, and prepare to especial order any compound required. Referring, for integrity of character, to D. Sprigg, Esq., Cashier of the Merchants' National Bank; R. Mickle, Esq., Cashier of the Union National Bank; Chauncey Brooks, Esq., President of the Western National Bank; Editors of "The American Farmer," and mercantile class generally. I am, respectfully,

G. OBER, *No.* 68 *South street, Baltimore.*

It is known to all that *soils* are rapidly exhausted by heavy cropping. They are renovated by manures. The principle of renovation is very simple—a mere return of elements taken from the soil by the crop if we would retain its fertility, and add still more if we would increase its productiveness. The various cultivated plants remove *Soda, Potash*, Lime, Sulphuric and Phosphoric Acid, Chlorine and Magnesia. Peruvian Guano is not properly proportioned—containing ammonia far in excess of need, and not sufficient of the salts. A manure must supply all the ingredients in their proper proportions to form a general manure. It will not do to depend upon ammonia and phosphates alone, *important as they are*, but *Alkalis*, the *Chlorine*, and *Sulphuric Acid*, must be *provided*. The preparations now offered have been compounded to meet the general want, and have been pronounced correct by competent scientific authority, and the closest investigation is challenged, knowing that in them these principles have been honestly carried out in practice. The alkaline salts have been generally omitted in the fertilizers now offered for sale.

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Very rich in all elements for *crop and soil*, as per analysis annexed, and cannot be too strongly recommended for *Wheat, Tobacco, Cotton, Corn, &c.* $55 per ton, 2,000 weight.

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Organic matter and combined water	26.20	Phosphoric Acid	12.21
(Containing *Ammonia*, 2.78.)		(Equivalent to *Bone Phosphate of Lime*, 26.46.)	
Lime	28.32	Sulphuric Acid	16.81
Soda	4.88	Magnesia, Iron, &c., not estimated	3.04
Potash	1.88		100.00
Chlorine	6.66		

It will be seen from the above statement of the constitution of this article, that it is an excellent general manure for the plants for which it is recommended, containing as it does the inorganic ingredients required by these crops, and enough ammonia to give a good start to them at the beginning. It is compounded upon correct principles, and has evidently been carefully made. I have no doubt that it will prove a valuable addition to the stock of fertilizers.

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ALKALINE PHOSPHATE.

A very soluble phosphatic and alkaline compound, within a fraction of 140 pounds Potash to every ton. *Who can doubt its value*—for all crops—absorbing moisture and receiving ammonia from the *atmosphere?* For *Grass it has no equal;* and every farmer growing wheat with grass, and using any other preparation, should use this *compound*, if for that *alone*. $45 per ton, 2,000 weight.

Report of Analysis of Alkaline Phosphate.

Water and organic matter (containing a trace of Ammonia)	12.70	Phosphoric Acid	5.99
		Equal to Bone Phosphate of Lime, 12.98	
Soluble Silica	0.79	Sulphuric Acid	10.09
Insoluble Silica and Silicates	18.85	Magnesia, Oxide of Iron, &c., not estimated	7.04
Lime	18.74		100.00
Alkaline Salts	25.20		

Containing Potash, 6.88; Soda, 4 15; Chlorine, 5.53.

It is very evident that the above will prove an excellent fertilizer for all soils or crops requiring Alkalies.—Wherever ashes are beneficial, this manure will prove much more efficacious, by reason of its far greater richness in Potash and Soda. The presence of a notable quantity of Phosphates gives an additional value to it, which confers upon it a more general character. I have no doubt that it will prove highly beneficial, especially to Corn, Tobacco, and Cotton, and as a top-dressing for Grain and Grass.

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Analytical and Consulting Chemist.

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My faith in the foregoing preparations is so strong, that I give any farmer *doubting*, an opportunity to have them analyzed by Prof. Piggot, at my expense. The *spring application* promises very handsomely thus far.

The Great Wheat, Cotton and Tobacco Fertilizer!

KETTLEWELL'S

Manipulated Guanos;

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PHOSPHO-PERUVIAN.

No. 1 Peruvian and Phosphatic Guanos,

WITH OTHER IMPORTANT ELEMENTS, REDUCED TO IMPALPABLE POWDER AND INTEGRATED BY COSTLY MACHINERY.

This unequalled compound of the best Peruvian and Phosphatic Guanos, but recently introduced, after a suspension during the war, has already gained upon its former reputation. Our advices warrant us in saying that the use of this GUANO has been universally approved. Our agent in Georgia writes that "your AA Manufactured Guano bids fair to be the most popular in use." Our agent in Wilmington writes that "no such cotton can be seen as is growing from Wilmington to Chapel Hill, as is now growing from the use of Kettlewell's Manipulated Guano." We have letter upon letter, giving testimony, which can be seen at our office. Cotton Planters should not fail to get this Guano. FOR WHEAT it hardly needs any recommendation. Farmers recollect well the results of applications of this Guano previous to the war. Old customers are returning and rejoicing at its second appearance. We do not hesitate to say that the article now offered is far better than ever before sold. The compound being better made, the Phosphatic Guano is far richer in Bone Phosphate of Lime—besides, other important elements are added under the advice of eminent counsel. FOR WHEAT it challenges Peruvian Guano, pound for pound—the product being heavier, and improvement of land permanent. Ammonia and Phosphate of Lime being in proper proportions, no intelligent farmer can doubt the value. The AA being equal parts of Peruvian and Phosphate Guano, the A ½ and ¼.—Our desire is to make a valuable and uniform compound, and in order that the agriculturist may acquaint himself more fully upon the subject, he is invited to inspect this Guano at our office, or its composition and manipulation at our factory—as we have nothing to conceal, the closest investigation is solicited. The application is precisely the same as Peruvian Guano—being very fine it is admirably adapted to the Drill. Put up in good strong sacks—it is sold—AA per ton—2000—$70; A per ton, $60. Orders from farmers and dealers solicited by G. OBER, 68 South street, Baltimore. TERMS CASH, or approved city acceptances.

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Those understanding the value of POTASH, as a Fertilizer, can appreciate the value of this article. It was sold very largely before the war. For Tobacco, Corn, and as a top-dressing for Grain and Grass, it has no superior.

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A full supply of this article, of the best quality, will always be kept on hand and furnished to farmers or dealers at the lowest rate.

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This valuable GUANO—containing 8 to 10 per cent. ammonia, with a good supply of phosphates and some of the alkaline salts, and now esteemed as only second to Peruvian Guano—will be kept in large supply, and sold ground or unground. Having every facility to prepare this Guano, it will be sold at the lowest market rate.

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300 BARRELS GROUND VIRGINIA BONE DUST on hand—warranted pure.

Peruvian and Phosphatic Guano,

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G. OBER, 68 South Street,

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BAUGH'S
RAWBONE PHOSPHATE

Containing { 53 per cent. PHOSPHATE OF LIME.
4.05 per cent. AMMONIA.

It should be borne in mind that the *Phosphate of Lime in this article, being obtained exclusively from Raw Bones and a true Bird Guano, there is no portion of it inoperative,* as in the case of Super-Phosphates *made from Mineral Guanos,* but, *being entirely soluble in the soil, continues to impart its fertilizing qualities to the crops for years.*

It is *guaranteed* to be *more beneficial* to the soil than *Peruvian Guano,* for while it has *sufficient Ammonia* to push forward the crop, it *has no excess of it,* as *Peruvian Guano has,* and therefore does not over-stimulate the land, but *continues to impart its fertilizing qualities for years.*

The *remarkable success* which has attended its use in Maryland, and parts of Virginia, *is a sufficient guarantee to induce those who have not tried it, to do so.*

My price in Baltimore is uniform with the manufacturer's prices—and it can be obtained at the same price, adding costs of transportation from Baltimore, from dealers throughout the Southern States.

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15,000 Dwarf and Standard Pear Trees,

15,000 PEACH AND OTHER FRUIT TREES,

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All kinds, *thirty varieties in bearing,* including all the new kinds.

ORNAMENTAL AND EVERGREEN TREES,

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